

Upham (J. B.) Thayer - from the author.

RECORDS
OF
MACULATED TYPHUS, OR SHIP FEVER,
WITH
SUGGESTIONS OF TREATMENT.

BEING THE RESULT OF A SERIES OF OBSERVATIONS MADE DURING THE PREVALENCE
OF THIS DISEASE

AT SOUTH BOSTON AND DEER ISLAND HOSPITALS IN 1747-48. 8

With Plates.

BY
J. B. UPHAM, M. D.

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THE HISTORY OF THE

ENGLAND OF THE

WILLIAM

J. B. WILLIAMS

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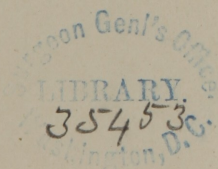
RECORDS
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Presented by
WITH *Wm Thayer,*
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M.DCCC.LII.

TO
CHARLES H. STEDMAN, M. D.,
FORMERLY SURGEON OF THE MARINE HOSPITAL AT CHELSEA,
AND MORE RECENTLY
SUPERINTENDENT OF THE BOSTON LUNATIC HOSPITAL,
AND PHYSICIAN TO THE CITY INSTITUTIONS AT SOUTH BOSTON.

These Records
ARE GRATEFULLY INSCRIBED,
IN TESTIMONY OF THE ESTEEM AND RESPECTFUL ATTACHMENT
OF HIS FRIEND AND PUPIL,

J. B. UPHAM.

MORBID APPEARANCES FOUND IN THE INTESTINES IN THE SECONDARY AFFECTION OF MACULATED TYPHUS.

Plate I.



A. Sonrel lith.

Printed by Tappan & Bradford

- 1.-Inflamed portion of small intestine. 3.-Portion of ileum 4 feet from valve.
 2.-Portion from upper half of ileum, 4.-Portion of ileum 3 feet from valve.
 showing the commencement of the
 Rugae; the muc. memb. has been
 5.-Peyer's patch perfectly normal,
 seen apparently depressed.
 divided by the scalpel.

MORBID APPEARANCES FOUND IN THE INTESTINES IN THE SECONDARY AFFECTION OF MACULATED TYPHUS.

Plate II.



A. Sonnet.

1.-Portion of Ileum at Neo Coecal valve.
2.-Coecum, showing the ulcerations of the Solitary Glands.

3.-Portion from Sigmoid flexure of Colon, engorged and thickened.

CASES
OF
MACULATED TYPHUS OR SHIP FEVER;

WITH
SUGGESTIONS OF TREATMENT; BEING THE RESULT OF A SERIES
OF OBSERVATIONS MADE DURING THE PREVALENCE OF
THIS DISEASE AT SOUTH BOSTON AND DEER
ISLAND HOSPITALS, IN 1847-48.

BY J. B. UPHAM, M. D.,
OF BOSTON.

WITH ILLUSTRATIONS.

[Reprinted from the New-York Journal of Medicine.]

THE subject of this paper is one which has more or less engaged the attention of the writer for several years. The disease was first noticed while a student at the hospitals connected with the House of Industry, at South Boston, in the summer of 1846. During that season, not more than fifty or sixty cases appeared. As then manifested, the disease was strictly sporadic in its nature, and mostly of a mild character, though bearing all the distinctive marks so prominent in its subsequent epidemic form. It was a matter of curiosity, rather than of special interest or dread. Presently, it was remarked, that all the instances which occurred were among the emigrants recently landed from the ships; and hence it was commonly designated in the Hospital Register, by the title of "ship fever."

Towards the first of September the disease entirely disappeared from the wards, and was not again seen till the month of January following. In that and the first of the succeeding month, a few cases again appeared, and the admissions gradually increased in frequency till about the middle of March, when several vessels arriving in port together, after prolonged and tedious voyages, poured upon us a large influx of patients, and from this the epidemic may be said to date the commencement of its fearful reign. It continued till the first of July following, about which time the Quarantine establishment on Deer Island opened its portals; and no more admissions for the fever were allowed at the House of Industry. The greatest number of typhus cases in the wards at any one time, was about two hundred.

It was during these four months of labor in the capacity of assistant physician to the hospitals connected with the House of Industry, that my attention was turned to the study of this disease, in its primary form and its peculiar characteristics as revealed in the living and dead, minutely recorded. Subsequently, as resident physician for a few weeks in the Quarantine Hospital at Deer Island, my investigations were directed more particularly to the secondary effects of the fever, which here and at South Boston had been a constant accompaniment during the prevalence of the epidemic, and had proved, despite all the known methods of treatment, peculiarly intractable and fatal. It was while prosecuting my researches into this sequel to the fever, that the novel and striking lesions shown in the annexed plates were revealed, and which it is my belief had never before been regarded in this country or in Europe. My friend and colleague, Dr. C. A. Walker (afterwards assistant physician at Deer Island, and now superintendent of the Boston Lunatic Hospital), aided in the examination of many cases, and shared with me the fatiguing labors of the dead house.

As it is not possible in the limited space I should feel justified to occupy in the Journal, to give a memoir of the epidemic in question, which would be complete and distinct in all its parts; I propose here only to offer a few cases to represent the condition of the fever, as shown in its various types and modifications, together with some suggestions of treatment drawn from personal observation. It is my hope at some future day,

should opportunities present to extend still farther the field of investigation, to give in a more extended form the results of my researches in a disease which has more than decimated the ranks of our profession whenever it has assailed them. The delineations which follow will show in order :

I. The conditions and appearances of the fever as presented under the exalted and depressing type, in both its mild and severe forms, terminating in recovery and otherwise.

II. The secondary intestinal affection or sequel to the fever, with the striking lesions discovered in the intestinal tract.

III. The effects of treatment as adapted to these various forms and manifestations of the disease.

Some of the cases here selected, are the same published in an isolated form in the *Boston Medical and Surgical Journal*, in January and February, 1848, and are chosen as showing perhaps more perfectly than any others the different phases of the epidemic as it appeared in the above-named places. The first instance adduced is one of sporadic nature, of medium severity, which could be traced to no definite source, running its course evenly and without any marked phenomena, but of the nature of which there could be no doubt.

CASE 1.—Mary J. D., 30 years of age, of large frame, bilious and nervous temperament, was admitted to hospital of House of Industry, July 1st, with fever. Two or three weeks previously she was discharged from the wards, where she had remained several weeks under treatment for chronic bronchial affection, with indigestion and other dyspeptic symptoms. At the time of her departure she considered herself well, and returned to her situation as domestic in a family in the city.

Having experienced for two or three days previously erratic pains throughout the system, with occasional nausea, anorexia, dizziness and general lassitude ; on the 26th of June, while about her usual employment, she was suddenly seized with chills, accompanied with violent headache, and followed by heat, pain in the back, joints and limbs, stiffness and general soreness of the muscles. The following day she took to her bed. Since then the above symptoms have been increasing from day to day, with decided exacerbations at night. She

has had hot skin, thirst, a loaded tongue, perverted vision, great restlessness and inability to sleep. She had been purged freely at the outset, and two days previous to admission got an emetic of ipecac., which operated well.

July 1st.—Appears a good deal prostrated. Complains of violent headache, particularly intense in a line across the forehead, and pains in back, loins and limbs; much nausea, retching; foul and loaded tongue. She has considerable cough, but this is of long standing. Abdomen soft and natural. No appetite, intense thirst, great restlessness and general uneasiness. Directed tepid sponging of arms and chest. Cold lotions to head; cool drinks; light farinaceous diet. Morphia, gr. $\frac{1}{8}$ nocte.

July 2d.—Drowsed a little, but got no refreshing sleep during the night. This morning has still intense pain across the forehead and in the eyes, with great sensibility to light—brows contracted—face sallow and expressive of some stupor—tongue swollen and flabby, covered with a thick, yellowish white fur extending to edges and tip—bad taste in mouth—fœtor of breath—harassing cough—pain and soreness of chest undiminished; percussion good anteriorly—slight bronchial mucous rale; burning heat in stomach; dull pain in upper portion of right iliac region, increased by coughing; abdomen otherwise natural; pulse 94, regular, quick and jerking, moderately full; urine scanty, high coloured, thick and sedimentous; three stools, very dark and fœtid; skin dry, but little above the ordinary temperature. Surface of abdomen, chest and shoulders presents, on careful examination, a *peculiar obscure mottled appearance*, resembling the commencing congestion of a mild case of roseola, but no maculæ yet defined. Cold drinks in small quantities, frequently administered; gruel; bland arrow-root given cold; evaporating lotion to head; turpentine stupe to chest and epigastrium; effervesc. mixt. p. r. n.; sulph. morph. gr. $\frac{1}{8}$ repeated in two hours, s. o. s.

July 3d.—Slept pretty well on $\frac{1}{8}$ gr. morphine; expression of face much the same; headache less severe; eyes a little injected; tongue has somewhat darker coat, otherwise the same; slight appearance of sordes on teeth and lips; great fœtor of breath; skin dry and hot, with great sensitiveness of

surface ; pulse 104, regular, moderately full and firm ; cough the same ; tenderness of epigastrium slight ; pain and uneasiness of chest relieved ; abdomen soft, natural, no tenderness on pressure ; no pain. Maculæ apparent on abdomen and sides of chest, seen also faintly on arms and legs ; these spots disappear almost wholly on pressure, and resemble the lighter eruption of measles ; urine scanty and high colored ; no stool ; surface of whole body emanates a strong, offensive, and peculiar odor ; flying pains in back and limbs ; intelligence good ; no appetite ; great thirst for cold drinks. Diets and drinks as yesterday ; continue efferv. mixt.; ol. ricini. ζ ss. in emulsion ; morphia, p. r. n. at night ; lot. to head continue.

July 4th.—Slept early in the night, after two doses morphia. General appearance as yesterday ; pain continues in head, back and loins ; eyes the same ; face somewhat flushed ; tongue inclining to brown ; chest natural on percussion anteriorly ; slight bronchial mucous rale ; some dulness inferiorly, on back ; respiration generally somewhat obscure ; some tenderness at epigastrium ; considerable nausea and retching. Abdomen soft, natural ; no tympanites, tenderness, or pain ; skin more hot, but moist ; burning sensation at stomach ; pulse as yesterday ; spots more numerous and distinct, seen on abdomen, chest, extremities and back ; urine as yesterday ; three stools of dark yellowish brown color. The strong and peculiar odor of surface very noticeable ; no appetite ; great desire for cold drinks ; intelligence a little obscured. Ice-water in small quantities and frequently ; liq. acet. ammon. ζ ss. q. t. horà, or neutral mixture if the former disagrees ; morphia at night, in doses one-sixteenth gr. repeated every hour till sleep supervenes, or till $\frac{1}{4}$ gr. has been taken.

July 5th.—Took $\frac{1}{8}$ gr. morphia last night, which procured sleep of short continuance and disturbed ; general appearance of more prostration ; pain in head abated, continues in back and loins ; eyes slightly injected ; face less flushed ; tongue swollen, coat darker in middle, very white towards edges, but quite moist ; cough severe, attended with pain and hoarseness ; considerable tenderness at epigastrium ; nausea and retching relieved ; heat of skin increased, communicating a burning sensation to the hand ; general and great sensitiveness of sur-

face. Spots apparent on chest, abdomen and back, mostly vanish under firm pressure, more numerous and persistent on back; pulse 104, soft, compressible; breathing hurried and laborious, but regular; urine as yesterday; one stool; intelligence good; no appetite; persistent thirst; desires cold and acid drinks.

Mild farinaceous diet, given in small quantities at regular intervals; tepid sponging of trunk and arms; liq. acet. ammonia, or effervescing draught; cold drinks, slightly acidulated with cream of tartar. Morphia nocte, p. r. n.

July 6th.—Took $\frac{1}{4}$ gr. morphia; rested better during the night; still increasing prostration; pain more severe in head; in back and limbs as yesterday; eyes sensitive and suffused; face paler; tongue as yesterday; cough rather less; some tenderness of epigastrium; nausea returned; skin moist, but intensely hot (calor mordicans); spots much as yesterday, a little paler; pulse 104, a little fuller and firmer; breathing 36, somewhat laborious, interrupted by coughing; considerable apathy and stupor, but patient easily roused, and then answers questions readily and rationally; some sordes on teeth and lips; breath very foetid; no appetite; urgent thirst continues; one yellowish-brown liquid stool; urine more abundant and of lighter color. Spirits mindereri or soda, p. r. n. Sponge with very mild solution of chloride of soda, tepid or cold, as most agreeable. Terebinthinate liniment to chest and epigastrium; in other respects ut heri.

July 7th.—Took $\frac{1}{4}$ gr. morphia, and slept well at night; face as yesterday; eyes less sensitive to light; tongue swollen; coat more foul and dark; sordes on teeth and lips; skin very hot but moist; coughs much; great tenderness in epigastric region; abdomen soft and natural; spots disappearing; pulse 100, of moderate strength and volume; respiration 32, laborious, accompanied with moaning; urine as yesterday; bowels rather loose; stools watery, dark, and offensive; no appetite; thirst continues urgent; complains of loss of memory and great weakness. Sinapism to epigastrium; pulv. Doveri, gr. viij., which repeat s. o. s. Continue in other respects as yesterday. Morphia in minute doses at night, s. o. s.

July 8th.—Slept well most of the night after gr. $\frac{1}{4}$ of mor-

phia; general appearance improved, though expressive of great weakness; eyes clearer and less sensitive to light; pain in head much less; tongue somewhat swollen, covered with foul, dark yellow coat in middle, very white towards edges, cleaning at tip; sordes on teeth; skin less hot and more moist; coughs much; soreness at epigastrium much relieved; abdomen soft and natural; bowels not so loose; one stool this morning, more natural; maculæ faintly seen; breathing 28, less laborious, with slight moaning; pulse 88, firmer; a little appetite; thirst not so urgent; complains of weakness and faintness. Repeat sinapism, s. o. s.; increase diet; beef-tea cautiously given; toast water; morphia nocte, gr. one-sixteenth repeated q. semi horâ till sleep ensues.

July 9th.—Took morphia three times and slept pretty well; general appearance much as yesterday; eyes the same; face more flushed; headache increased; tongue as yesterday; sordes on teeth and lips; cough severe; constant dull pain in chest; increased epigastric tenderness; breathing 32, regular, slightly laborious; abdomen soft and natural; skin moderately cool, moist; pulse 88, character as yesterday; urine the same; one stool, scanty and dark; diminished thirst and improved appetite. Effervescing draught; turpentine stupe to chest and epigastrium. Omit beef-tea, and allow only toast water, bland arrow-root or panada in small quantities and at frequent intervals.

July 10th.—Took $\frac{1}{4}$ gr. morphia and slept well; general appearance brighter; face paler than natural; eyes clearer; tongue has a dark yellow foul coat on centre and base, moist, very little sordes on lips; pulse 82; respiration 32; one stool, more natural; appetite improved. More nourishing diet; morph. nocte.

July 11th.—Slept much yesterday, but little during the night; tongue a little improved; sordes gone from lips, a little on teeth; very little pain in head, much in extremities; slight tenderness of epigastrium; abdomen natural; skin cool and moist; pulse 80, feeble, compressible; breathing 38, easy; urine natural; no stool; considerable thirst; appetite good. R. Vin. puri, sol. sulph. quiniæ, ā ā M. ʒss. every fourth hour. Nourishing diet; toast water.

July 12th.—General aspect improved, but expressive of weakness; severe pain in legs, but none elsewhere; tongue cleaning, moist; cough loose, and much less; skin cool and moist; pulse 80, fuller and firmer; breathing good; no stool; but little thirst; appetite moderate. R. Ol. ricini, $\frac{3}{4}$ ss. in aromatic emulsion; wine and quinine continued; mutton broth in small quantities.

July 13th.—Slept well without the aid of morphia; eyes and face natural; tongue has thin, moist, dark brownish coat in middle, natural at tip and edges; no tenderness at epigastrium; thirst diminished; appetite improved; pain in lower extremities severe and annoying; skin cool and moist, natural; one stool; pulse 80, soft, regular, of moderate volume. More nourishing diet given often in small quantities; wine and quinine continued less frequently; stimulating pediluvia.

July 20th.—Nothing unusual has occurred since last date. Convalescence has proceeded evenly, and rapidly as could have been expected in a previously enfeebled constitution. Nourishing diet and drinks; beef-tea and broths cautiously given; bitter tonics alone or in combination with stimulants, and oil in emulsion to open the bowels when costive, has been prescribed, as circumstances required. Patient has now her usual degree of health.

This case offers nothing remarkable. Its duration from the first accession of fever to convalescence, was 16 days. As might have been predicted, the force of the disease was determined chiefly to the chest. Next to the lungs, the stomach suffered most. The prostration was very considerable. The brain was only slightly affected. There was no very marked vascular or nervous excitement. The eruption, the hot skin, the peculiar odor of the perspiration, and the general fuliginous aspect, were characteristic. The only plan of treatment demanded was the expectant, till marked prostration began to appear, when the combination of wine and quinine with a strengthening diet, cautiously managed, produced the best effects. Diarrhea, which came on once, was readily checked by the powders of ipecac. and opium in small doses.

CASE II.—John Swain, a sailor, 49 years of age, of robust frame and hardy constitution, formerly intemperate, became an inmate of the House of Industry in April. He assisted occasionally as nurse in the fever wards, and was constantly more or less in communication with the sick.

June 24th, was admitted to hospital. Four days previously he complained of weakness, lassitude and incapacity for exertion, with headache, pain in back and limbs, uneasy sensations at the stomach, general sensitiveness of surface and soreness of the muscles, or to use his own expression, “a *bruised* feeling, as though he had been beaten with clubs.” For the three following days, these symptoms continued in an aggravated form, with occasional rigors and alternations of heat. His appetite remained pretty good, and he still kept about, wearing a dull look.

June 25th.—Sixth day of fever. Had at time of admission yesterday, intense cephalalgia, referred chiefly to forehead and eyes, with increase of all the preceding symptoms—well-marked and protracted chills, followed by intense heat. Got an emetic of ipecac. $\frac{3}{4}$ ss., which operated well, and produced diaphoresis, with temporary relief of symptoms. Slept but little during the night; has this morning intense pain in head and back; also pain in joints and limbs; eyes dull; face flushed, of darker hue than natural; expression of some apathy; tongue covered at centre and base with moderately thick, moist, yellow coat, clean and red at edges and tip; skin moist, not much above the natural temperature; abdomen soft and natural; slight gurgling in right iliac region, no pain on pressure; respiration good; an abundant eruption beginning to appear on abdomen, shoulders and chest, like florid measles in form and hue, some slightly raised, others not at all, vanishing mostly under pressure; great restlessness; considerable appetite; much thirst; pulse 84, full and moderately strong; urine free; one or two stools since yesterday morning, offensive. Ol. ricini in emulsion; light farinaceous diet; acet. ammonia, $\frac{3}{4}$ ss. q 4th horâ—morphia, gr. $\frac{1}{8}$, nocte.

7th day.—Slept two hours after the morphia. On waking felt much relieved; this morning expression better; intellect clear; less pain in head and back; same in joints; tongue as

yesterday; face of darker hue; pulse more frequent, of moderate force and volume, regular; breathing a little quicker, regular; skin hot and dry; abdomen natural; no tympanites, tenderness, or soreness; gurgling ceased; spots more apparent, of darker hue, irregular in form, isolated and in clusters, disappear only partially under the finger, and communicate, some of them, a slight sensation of elevation; urine as yesterday; bowels regular; appetite continues good; thirst urgent, desires acid drinks; complains of much weakness. Gruel, weak tea and dry toast in moderate quantity; slightly acidulated drinks; tepid sponging; acet. ammon. ut heri.

8th.—Increased prostration; no good sleep; wandering delirium at night; some nervous agitation; intense pain in head; tongue thickly coated with dark yellow fur, but yet moist, tip and edges of lilac hue; dark thin line of sordes on lips; some cough; pulse more frequent, otherwise as yesterday; skin very hot; perspiration at times abundant, but affords no relief; maculæ very abundant on abdomen, chest and extremities, darker in hue, on some parts resemble the dark efflorescence of measles, slightly raised, disappearing on firm pressure; others of the nature of true petechiæ, imbedded in substance of skin, persistent; some tenderness at epigastrium; no tympanites or tenderness of abdomen; much nausea and retching; urine high colored; bowels moderately free; dejections liquid and dark; appetite still good; much thirst for acid drinks. Diet and drinks as yesterday; tepid sponging continued; cold to head; efferv. mixt., sulph. morph., gr. $\frac{1}{8}$ at night, repeated in two hours, s. o. s.

9th.—Got some sleep after two doses morphia; pain in head diminished; eyes somewhat injected; face more flushed, inclining to leaden hue; tongue darker in middle and base, in other respects as yesterday; pulse weaker, compressible; some irregularity of breathing; slight cough, attended with some pain; percussion good anteriorly; slight bronchial mucous rale; skin less hot; perspires much; spots increasing in abundance; still darker, communicate no sensation of elevation to the finger; persistent under pressure; abdomen natural; three dejections; appetite morbid; some stupor, but intelligence good when roused; same treatment continued.

10th.—Slept considerable; stupor more marked, but intelligence clear when roused; answers questions with difficulty from exhaustion; some sordes on teeth and lips; tongue swollen, with dry brownish coat in centre, light moist fur at edges; pulse more frequent and feeble, very compressible; skin cool and moist; perspires continually; spots petechial, livid, persistent; abdomen natural; three or four dejections. Beef-tea in small quantities regularly given; $\frac{3}{4}$ ss. of a mixture of wine and sol. sulph. quiniæ, equal parts every fourth hour; sulph. morph. gr. $\frac{1}{16}$ repeated twice at intervals of an hour.

11th.—Slept very little; eyes suffused; dull pain in head; face of dusky hue; thick dark brown, foul coat on tongue, livid at tip and edges; sordes on teeth and lips; breathing short, hurried; pulse 112, weak, compressible, regular; skin moist, slight increase of temperature; considerable cough; percussion dull at posterior and inferior portions of chest; some tenderness at epigastrium; abdomen soft and natural; abundant livid maculæ on abdomen, chest and back, less distinct on arms and legs; urine high colored, cloudy; two stools; great prostration; stupor, but no decided cerebral symptoms; impulse of heart feeble; appetite *gone*. Vin. et quin. every two hours; mutton broth in small quantities frequently given; morphia at night in minute doses, p. r. n.

12th.—Slept well towards morning; $\frac{1}{8}$ gr. of morphia; dull headache continues; tongue a little drier and browner; face as yesterday; sordes on teeth and lips; breathing 36; pulse 112 regular, much less compressible; skin above natural temperature, less moist; chest symptoms as yesterday; spots more apparent on extremities, in other respects as yesterday; abdomen natural; two stools, yellowish, liquid, fætid; stupor rather less marked; appetite returned; intense thirst. R. efferv. draught; porter in small quantities; vin. et quin., ut heri. Morphia, p. r. n.

13th.—Slept pretty well; expression of countenance dull and vacant; more stupor; eyes less injected, some sensitiveness to light; tongue protruded with difficulty, red at tip and edges, more dry, covered with a thick dark yellowish brown coat, fissured; no tenderness at epigastrium; percussion decidedly dull to a considerable extent on lower back, with

slight sub-crepitant rale and bronchophony ; breathing as yesterday ; skin more hot ; pulse 112, as yesterday ; abdomen natural ; one stool, dark, slimy, fœtid ; petechiæ still of darker hue, more vivid on extremities, very abundant and strongly marked on back ; some appetite, and thirst for acid drinks ; great prostration ; same treatment as yesterday. Morphia at night, p. r. n. ; tonic mixture more frequently given.

14th.—Got some unquiet and disturbed sleep ; continual moaning ; more complete prostration ; great headache, and pain in every part of body ; great sensibility of surface, and soreness of muscles ; face more flushed and of more dusky hue ; tongue glossy at tip and edges ; its central coat dry, hard and black ; protruded with difficulty ; no sordes on teeth ; slight cough ; tenderness at epigastrium ; pulse 98, rather more feeble ; skin as yesterday ; breathing more difficult, short and hurried ; spots fainter ; three stools, character as yesterday ; appetite capricious ; constant and great thirst for acid drinks ; intelligence more obscure ; tendency to coma ; subsultus affecting tendons of wrists and hands ; decubitus dorsal, with knees drawn up ; slips down in bed. Beef-tea ; chicken broth ; wine and quinine, $\frac{3}{4}$ ss., g. sec. horâ. Efferves. draught ; Dover's powder, grs. v. nocte.

15th.—Slept pretty well ; general appearance as yesterday ; pain continues severe in head and back ; eyes injected, and very sensitive to light ; tongue protruded with difficulty, withdrawn slowly, with a hard, dry dark coat extending to tip, edges livid and moist ; more sordes on lips ; face more dull, more livid and dusky ; chest symptoms less severe ; continued tenderness at epigastrium ; sensitiveness of surface continues ; skin generally, over the body, darker than natural ; spots fading, the lightest disappear on pressure, others do not ; very light tenderness of abdomen ; one stool ; urine abundant ; skin less dry and hot ; pulse 88, of moderate fulness and firmness, regular ; intelligence improved ; some moaning ; appetite and thirst less ; decubitus more easy. Arrow-root, beef-tea, cautiously given ; demulcent drinks ; tonic mixture every fourth hour ; morphine, gr $\frac{1}{16}$, at night ; repeat every hour till sleep ensues, or till gr. $\frac{1}{4}$ is taken.

16th.—Passed a better night ; general appearance of great

prostration; countenance clearer; eyes less injected and less sensitive; pain in head and back much less; tongue protruded and withdrawn more readily, clearing at tip and edges a little, otherwise as yesterday; less sordes; less cough, breathing more easy and free; slight moaning; very slight tenderness at epigastrium and abdomen; surface less sensitive; spots fainter; skin natural; urine natural; three stools, scanty, yellow; thirst yet urgent; appetite strong; intelligence good; decubitus easy and natural; says he feels weaker. Efferves. draught; veal broth; arrow-root; wine and quinine, *ut heri*; morphia, s. o. s.

17th.—Slept very well; complains of weakness only; eyes and face more natural; tongue inclining to moist, its coat less hard; breathing 16, regular, free, easy; cough less; skin cool, natural; sensitiveness of surface diminished; spots fading; no tenderness at epigastrium; urine more abundant, passed without difficulty; two stools, more natural; appetite good; thirst still considerable for acid drink; intelligence good; decubitus on side or back, easy; pulse 80, full, firm, regular. Continue same remedial measures.

19th.—The notes of yesterday showed an improvement in all the symptoms; tongue cleaner at tip and edges, its coat less dark and hard; all the excretory functions more naturally performed; pulse 78, full and firm.

This morning, appears still improved; slept well all night; no pain; face and eyes brighter; tongue cleaning; no cough; skin natural; urine abundant, of good color; one stool, natural; appetite urgent; thirst less; pulse 72, full, regular. Same treatment; particular caution enjoined as to diet; good farinaceous articles; calves'-foot jelly and the lighter broths, administered in small quantities, frequently and regularly; tonic mixture, $\frac{3}{4}$ ss. *ter in die*; morphia, $\frac{1}{2}$ gr. *nocte*, s. o. s.

21st.—Yesterday had somewhat more thirst; tongue clean in middle, but dry and very red, a broad line of white coat on each side; no pain; expressed himself as feeling every way better. Substitute a grain or two of sulphate of quinine, three times a day for the mixture.

To day, tongue cleaner, but rather dry and very red; no morbid thirst; universal and marked improvement; complains of nothing but weakness and hunger.

24th.—Nothing unusual has occurred ; tongue moist, still very red ; no affection of chest remaining ; thirst natural ; digestion well performed ; all functions natural. Convalescence was speedily merged in perfect health, with no untoward symptom.

Observations.—Here the disease was more intense than in the preceding case, and showed a pretty distinct crisis on the eve of the 15th day. The persistent appetite was a curious feature. The petechial eruption and dusky surface were strongly exhibited, but the peculiar heat alluded to above was not present, and the offensive odor of the body, though noticeable, was slight. There was considerable stupor, but cerebral and general nervous disturbance was not marked ; there was no prominent affection of any internal organ. The tendency was to general exhaustion, and the case, though of medium severity, is a fair example of a large class, which assumed the depressing type during the epidemic, and shows well the effect of this form of the fever upon a robust and muscular subject. The benefit of a cautious stimulant and tonic treatment, which was adopted in such cases, and followed up even from an early period in the disease, is manifest.

The readiness with which, in both of the above cases, sleep was induced by minute doses of morphia, also demands notice.

CASE III.—George Ames, 48 years of age, of strong frame and plethoric habit, formerly addicted to intemperance, has been for several years an occupant in the House of Industry. For two or three years past he has officiated as nurse in the various wards connected with the hospital. His general health is good ; he has a resolute will, and strong powers of endurance. Since the 1st of May, he has had charge of one of the principal fever wards of the hospital.

On Sunday, June 20th, experienced feelings of languor and uneasiness ; general soreness of muscles ; loss of appetite ; dull pain in head, back, and joints, with considerable prostration of strength. The following day these symptoms increased in severity, but he made no complaint, and kept about, attending to his usual duties in the ward. On the 22d, at the hour

of visit, his condition attracted observation, and he was directed to keep his bed. He had taken that morning, on his own responsibility, two ounces of a mixture containing equal parts of tincture of rhubarb and castor oil, which had the effect of producing several abundant dark-yellowish fæcal discharges; his tongue was slightly coated—pulse good. He still persisted in attempting his customary occupations. Towards evening he had an aggravation of all the preceding symptoms, with nausea, retching, and occasional chills, followed by intense heat.

On the 23d, symptoms still continued. He had intense cephalalgia, a dull and inexpressive face, suffused eyes, full and laboring pulse. Directed an emetic ipecac., $\frac{3}{4}$ ss. liq. acet. ammon., light farinaceous diet.

The day following there was increasing prostration; constant and harassing pain in head, back, and limbs; hot skin, thirst, restlessness, considerable nausea and uneasiness in the stomach. Towards evening, on the 25th, the headache and pain in the back sensibly abated; there was dizziness, increasing apathy, and some confusion of the intellect. He had been sponged, and had taken mild diaphoretics, cool and acidulated drinks, and Dover's powder or morphia in minute doses at night.

26th.—Sixth day of fever. Complains of great weakness; expression of much apathy; eyes suffused; cheeks flushed; tongue covered posteriorly with thick yellowish coat, clean at sides, and tip moist; fætor of breath; breathing somewhat irregular; some nausea; skin rather dry, not much above standard temperature; abdomen full and soft; no appetite; much thirst for acid drinks; pulse a little more frequent than natural, of moderate strength, and volume regular. One dejection this morning, dark, liquid, and offensive; mind dull, but patient is easily roused, and then answers questions readily. Efferves. mixt., weak lemonade, gruel, morphia, $\frac{1}{8}$ gr. nocte.

27th.—Seventh day. Slept but little; complains of no pain; increased prostration; countenance dull; eyes much suffused, conjunctiva slightly injected, some dimness of vision; tongue has dark yellow coat on centre and base, red at edges and tip; breathing more frequent; skin intensely hot, but

moist; hue of surface a little darker than natural; sides of abdomen and chest present an indistinct mottled appearance (the faint roseate congestion before alluded to), by attention to which the approach of the characteristic eruption may be predicted with certainty; the same appearance, more obscurely seen, on the shoulders and thighs; abdomen soft and natural; urine free, and high colored; three dejections, dark, slimy, fœtid; pulse 90, moderately full, soft, compressible. Directed cold or tepid sponging, as most agreeable; neutral mixture; spts. mindereri, ʒ ss. q. 4th horâ; sulph. morph., gr. $\frac{1}{8}$, nocte.

8th day.—Slept but little during the night; general appearance of prostration; decubitus mostly on back; lies low in bed; eyes as yesterday; face flushed and dull; tongue more coated, inclining to brown; pulse a little more frequent, more compressible; some cough, attended with soreness; skin rather dry, heat as yesterday; spots begin to appear on abdomen and chest, of florid hue, vanish under the finger; urine scanty, and very dark; one dejection, dark and slimy. On grasping the patient's wrist, he invariably withdraws his hand, and glides it slowly, and to appearance unintentionally, upward as far as the neck; answers questions with difficulty and hesitation. Sponge trunk and arms with tepid water; mucilaginous drinks; in other respects, continue treatment as yesterday.

9th.—Passed an unquiet and restless night; general appearance as yesterday; much apathy and stupor; conjunctiva much reddened and injected; cheeks assume a dusky hue; tongue uniformly covered with a foul, yellowish brown coat; respiration hurried; skin rather dry, less hot, emits a strong offensive odor; pulse laboring, compressible; eruption appearing thickly on abdomen and chest, in the form of dusky red, irregular maculæ, isolated and in clusters, varying in size from one quarter of a line to a line and a half, or two lines in diameter; these spots seem mostly buried in the substance of the skin, and vanish under firm pressure; intermingled are a few measles-like eruptions of florid hue, which give a sensation of elevation as the finger is passed lightly over them; the spots also appear, though less vividly, on the shoulders, loins, and thighs; abdomen natural; urine high colored and

clear—three stools; bland, farinaceous diet given regularly in small quantities; tepid sponging of arms and trunk—liq. acet. ammon. R. Vin. puri, sol. sulph. quinae āā ʒss. every 4th hour; morphia in minute doses at night.

10th.—Took gr. $\frac{1}{2}$ morphia; slept considerably after midnight; increased prostration; decubitus mostly dorsal; tendency to slip down in bed; delirious at intervals, manifested by low muttering; no pain complained of; face of leaden hue, dull and stupid; eyes as yesterday; tongue has a dark brown stripe in middle, flanked by moist yellow fur; red at edges and tip—protruded with difficulty, breathing irregular, quicker—some cough; chest natural on percussion in front, decidedly dull over whole back, more manifest inferiorly; but little heat or dryness of surface—general sensitiveness; slight tenderness at epigastrium; abdomen full and soft—free from tympanites, tenderness, or pain; spots more developed—more numerous—seen on abdomen, chest, extremities, and back; pulse 100, of moderate volume, less compressible; urine as yesterday; two stools—character as yesterday; some subsultus among tendons of wrists and fingers. Blisters to nape of neck, and sinapisms to calves of legs; porter in small quantities. In other respects same treatment as yesterday.

11th.—10 A. M. Has slept constantly since midnight, having taken previously from $\frac{1}{2}$ to $\frac{1}{4}$ gr. morphia in divided doses; increased prostration; decubitus as yesterday; no pain complained of; constant incoherent moaning; no decided delirium; countenance as yesterday; eyes much suffused and injected; tongue protruded with difficulty—covered uniformly with a thick dark-yellowish coat, red on edges; no sordes on teeth or lips; breathing 40, short and laborious; cough less; percussion dull on back, somewhat so on sides inferiorly; slight tenderness at epigastrium; abdomen soft; no pain or tenderness on pressure; general surface of body sensitive, of darker hue than natural; spots more distinct, larger, darker in hue, more apparent on extremities; urine very high-colored, and passed involuntarily, as are also the stools which are more liquid and lighter; no appetite; much thirst; pulse 104, very weak, small, compressible, regular; subsultus rather more marked than yesterday—confined to tendons of extremi-

ties; stupor great, but not amounting to coma; comprehends questions when roused, but answers with hesitation. Sinapisms to epigastrium, inside of thighs and feet; discontinue the porter; pure wine and beef-tea; omit morphia at night.

12th.—No sleep last night; moaned constantly; much restlessness and jactitation. This morning there is a general appearance of increased prostration; patient sinks down in bed; increased stupor; can still be roused to answer intelligently when repeatedly spoken to; has no pain; face still more dusky; capillary circulation feeble; eyes as yesterday; tongue the same; breathing 42, short, irregular, and laborious; some cough; very slight dulness on percussion observed anteriorly and inferiorly—on sides and back rather more marked; bronchial mucous rales; abdomen natural; spots more petechial; urine and fæces passed involuntarily; no appetite; thirst less urgent; pulse 110, very feeble, and compressible—somewhat irregular—same treatment; wine more often; morphia nocte $\frac{1}{16}$ gr., repeated in an hour, s. o. s. 8 P. M. Countenance more expressive of stupor and prostration; decubitus on side; breathing short and laborious; saliva dribbles from the mouth; pulse rapid and feeble.

13th.—Took $\frac{1}{8}$ gr. morphia; slept a little during the night; decubitus dorsal; slips down in bed; face of livid hue; eyes greatly injected; tongue protruded with difficulty, and slowly withdrawn—its coat darker and harder—some cough—epigastric tenderness; abdomen soft and full. No tenderness or pain; skin very hot, rather dry; breathing more laborious—hurried; pulse 112, very feeble and compressible—irregular and intermittent; no appetite; intense thirst; spots livid; urine and stools passed involuntarily; subsultus as yesterday; decided coma; intelligence much confused—answers incoherently. R. Vin. puri \mathfrak{z} ss.; sulph. quinæ, gr. j; ioidid. potass., gr. ij. M. Take every two hours. Beef-tea—toast water—liq. acet. ammon. p. r. n.

14th.—Took $\frac{1}{8}$ gr. morphia at 8 last night; slept for an hour or two soon after; prostration very great; decubitus constantly dorsal; stupor increased—the patient can still be roused to intelligence; face of a dull ashen hue; eyes continue injected; tongue protruded with difficulty, and not with-

drawn till requested, its coat more foul, browner; respiration laborious; sighing; cough less—apparently from inability; moans constantly; skin cooler; abdomen natural; spots livid, coalescing; intense thirst; slight subsultus; pulse 128, soft, compressible, feeble, regular; stools and urine voluntary; continue treatment of yesterday—flying blisters.

15th.—12 o'clock. Took $\frac{1}{2}$ gr. morphia at 8 last evening, which was repeated at 10; slept from midnight till 7 A.M. Nurse reports patient to have passed a more quiet and better night than heretofore; this morning expressed himself as feeling much better, and asked to sit up. On being raised by his attendant he fainted; has since made several efforts to speak, but failed to make himself understood; general appearance of extreme prostration; decubitus constantly dorsal; stupor great, but is more easily roused than yesterday; articulates very indistinctly; face of more ashen hue; eyes more injected, and darker; tongue protruded with less difficulty, very tremulous, returned more readily, its coat more dark and foul, livid at tip and edges; breathing more laborious, interrupted, irregular; but little cough; abdomen natural; skin fuliginous; spots disappearing; no thirst; slight subsultus around the mouth; less coma than yesterday; pulse 140, weak, very compressible, more regular. Continue the mixture every second hour; warmth to feet; flying blisters; efferves. mix. and beef-tea. p. r. n.

16th.—Since 2 o'clock A. M. has drowsed a little; general appearance worse; patient understands readily, but is unable to articulate; eyes more injected; tongue protruded with difficulty, very tremulous, swollen, fissured, covered with a hard, dry, yellowish-brown coat, livid at edges and tip; coughs very little; mucous rale distinct over whole chest anteriorly; breathing 50, short, laborious, interrupted; skin moderately hot, dusky; abdomen natural; subsultus continues; urine high-colored; stools dark, liquid, very offensive, passed involuntarily; strong and peculiar odor emanates from whole body; pulse 136, feeble, tremulous, rather less compressible. Continue treatment; stimulants more frequently, brandy, sinapisms to epigastrium and inside of arms and thighs.

17th.—Took $\frac{3}{4}$ grain of morphia; got three or four hours

of disturbed sleep during the night ; general appearance much as yesterday ; tongue more dry and hard, tremulous, swollen ; breathing 50, character as yesterday ; abdomen full and soft, no tympanites, pain or tenderness ; skin moderately hot, emits a strong offensive odor ; spots fainter ; subsultus increased ; pulse 128, feeble and tremulous ; urine scanty, very high-colored, offensive ; asked for vessel this morning ; stools scanty, dark-yellow, very fœtid ; decubitus on back ; lies low in bed ; stupor still increased, but no marked delirium ; patient can be roused with great difficulty, and immediately relapses. Continue active stimulant and revulsive medicines.

July 8th, 18th day, 11 A. M.—In articulo mortis ; last evening at 8, signified a wish to be raised up ; had at that time a very dark, liquid, offensive stool ; has been unable to articulate or to swallow since midnight ; insensible to external impressions. Died at 2 P. M.

Autopsy 20 hours after death.—Subject well developed ; very muscular ; no emaciation ; moderate rigidity ; considerable discoloration of posterior portions of the body, the skin of those parts presenting a livid hue ; a few petechiæ observed the same as before death ; chest full and capacious ; abdomen soft ; no unusual distension.

Head.—Dura mater has on its external surface a considerable amount of dark blood collected in the form of irregular globules ; the membrane itself natural. Arachnoid transparent, its cavity contains an ounce of liquid serum, appearing, as seen through the membrane, like jelly in the channels on the surface beneath ; veins of pia mater moderately filled with dark blood ; no adhesion of the membranes to the surface ; cortical substance of the brain firm, of a pale ash color, its medullary portion also normal in color and consistence ; numerous points of black blood exude from its cut surface ; lateral ventricles contain each about a drachm and a half of pure serum ; venous congestion remarkably shown on lower aspect of cerebellum ; fluid in sub-arachnoidian space very abundant, distending the membrane at base of brain and commencement of spinal cord.

Neck.—Lining membrane of trachea somewhat reddened ; in other respects nothing worthy of remark.

Thorax.—No adhesions of lungs to ribs. Cavity of pleura contains only its usual amount of serum. Pulmonary tissue mostly firm and crepitating on percussion; the lower and posterior portions of both lungs condensed and somewhat engorged, nearly impermeable to air. At apex of right lung is found an old cicatrix, and around a few chalky concretions, the lower and posterior margin of the same lung splenitized; bronchia engorged with reddish mucus. Pericardium normal, contains its usual amount of serum. Heart slightly enlarged, its parietes flabby and soft, no marked injection of internal lining membrane—valves normal—soft greenish coagula of lymph found on right cavities—left ventricle contains a small quantity of blood—the blood in aorta dark, thin and oily.

Abdomen.—A layer of fat three-fourths of an inch in thickness under the skin. Liver of natural size, very pale externally, its texture not disorganized; vessels filled with black, dissolved blood. Gall-bladder full but not distended. Spleen natural in size, bluish-black color, its texture somewhat softened, filled with black fluid blood. Kidneys normal. Omentum loaded with fat. Stomach of moderate size; mucous membrane in its cardiac half paler than usual, presents a pinkish tinge at pyloric extremity; the membrane seems somewhat softened around cardiac orifice, yielding strips of only a line or two in length; in other respects presents nothing remarkable. Mesenteric glands small and firm.

Intestines.—Externally some slight discoloration at lower portions of ilium; along the line of attachment of the mesentery veins are manifest, moderately congested with dark blood; internally mucous membrane of small intestines natural throughout its whole extent. About eight inches from ileo-cæcal valve is a spot two and a half inches in length by an inch in breadth, of uniform congestion, an ecchymosis, apparently, of the sub-mucous cellular tissue; internal surface otherwise natural; follicles of Brunner and solitary glands not developed; Peyer's patches normal, seen with difficulty; colon contains a moderate quantity of fæcal matter, its mucous lining normal. Bladder normal.

CASE IV.—John Salter, age 45, a strong, muscular man,

was brought from ship Washington, in quarantine, to Deer Island Hospital, in an advanced stage of the fever.

Sunday, Dec. 26th.—He presented the following symptoms: extreme prostration and collapse, with cerebral and general nervous disturbance; coma; low, muttering delirium; irregular and hurried breathing; universal subsultus; violent contractions of flexor muscles of extremities; inability to speak; tongue protruded with great difficulty, swollen, hard, dry and cracked; teeth loaded with black sordes; pulse 150 and scarcely perceptible. His abdomen was soft and natural to the feel; stools and urine passed under him; the surface of his body emanated an unusually offensive odor, and was covered universally, with the exception of the hands, feet, and face, with petechiæ, irregular in form, of large size and livid hue. Directed warmth to extremities. Sinapisms to epigastrium and inside of arms and legs, blister to nape of neck, wine and brandy freely given.

27th.—No material change. Extremities cold; risus sardonius. Flannels wrung in hot water to be applied to extremities and head. Flying blisters. Stimulants pushed. He died the following morning.

Autopsy.—Externally, no emaciation; chest large and full; abdomen soft, natural; no petechiæ. Adeps abundant over chest and abdomen.

Head.—Vessels of dura mater filled with dark blood. Arachnoid natural, a considerable amount of serum effused into its cavity, most apparent at points corresponding with parietal protuberances, where it appears like thin, transparent jelly. Pia mater considerably congested. Veins distinct between convolutions of cerebrum. On removing the membrane whole surface beneath appears somewhat reddened, more at base of anterior and middle lobes. Cortical substance normal in consistence and color. Medullary of slight violet hue, firm and natural; when cut numerous small points of dark blood are seen. Lateral ventricles each contain about a drachm of serum. Veins on floor of ventricles beautifully distinct. Cerebellum normal. Base of brain and commencement of spinal cord shows nothing remarkable.

Thorax.—Right lung shows old adhesions to the ribs

throughout its whole extent, a few traces of tubercles at its apex, its middle and lower lobes much engorged, particularly at posterior portions; inferior third of lower lobe friable, resembling in appearance a softened spleen. Left lung congested in its depending parts, otherwise normal. Bronchial tubes obstructed with frothy mucus. Pericardium natural. Heart large and flabby, its walls a little softened, contains in its cavities a medium quantity of greenish-yellow coagulum. Valves normal. Blood in aorta and large vessels fluid, dark and sizzly, its clot soft, readily broken down. The internal lining of both arteries and veins exhibits a peculiar oily appearance.

Abdomen.—Liver of natural color and size, its structure normal. Gall-bladder distended with a dark tarry fluid. Spleen natural in size, its texture easily broken down by the finger; contents dark, dissolved, grumous. Kidneys normal. Stomach natural externally, contains four ounces of grayish liquid; lining membrane coated with its own secretion, the mucous texture itself normal in consistence, affording strips seven or eight lines in length, its color also, for the most part healthy; near the cardiac orifices are seen patches of minute red points in clusters, with some surrounding redness.

Intestines.—Lower portion of ilium to the extent of two or three feet from cæcum, is somewhat discolored externally. Veins of mesentery distinct, dark, moderately full. Small intestines contain a medium quantity of thin grayish fluid; mucous membrane, to the extent of two and a half feet from the ileo-cæcal valve, is uniformly discolored and slightly congested, with a tendency to softening of its texture; elsewhere in all its extent normal in existence and color. No development of Brunner's glands or isolated follicles. Two or three of Peyer's patches are visible, presenting in a slight degree the *shaven beard* appearance, their mucous membrane being entire and healthy. Large intestine contains fæces of moderate consistence, its lining membrane and follicles natural. Bladder contracted. No alteration of mesenteric glands.

Observations.—In Case III. the characteristic features of the disease, its habits, symptoms, and pathological conditions, were well marked. It is an instance of direct contagion occurring in a subject of vigorous health, of fearless disposi-

tion and well tested powers of endurance. The accession of fever was violent. No symptom was engrossing. The morbid agent seemed to expend itself pretty equally on all the more important organs. There was marked prostration from the outset, and throughout the whole course a tendency to exhaustion of the life force. The duration was eighteen days longer than the average.

The case of Salter shows well the frequent manifestations of the disease as presented in those subjects brought into the wards in advanced stages, and who had previously experienced a combination of privations.

The *post mortem* developments in the two cases harmonize well. In neither was there any decided lesions of the brain; the presence of dark, dissolved blood in the sinuses and veins, and the slight effusion beneath the arachnoid, are all that arrest the attention. In the thorax the heavy engorgement of the depending portions of the lungs deserves notice. The contents of the abdomen were characterized rather by freedom from any important alteration. What most arrests the attention is the general dark fluid, and peculiar sizy character of the blood.

CASE V.—Cath. Gaffney, aged 18, landed from ship St. Petersburg, in quarantine, January 7, 1848. January 20th, was admitted to Hospital on Deer Island, about the 8th or 9th day of the fever—a well-marked case of ship typhus. About 30 hours before death, symptoms of jaundice appeared, though not then in a very marked degree. There was the yellow conjunctivæ and general discoloration of the surface, with the customary deep color of urine and light stools.

This patient had no delirium.

Autopsy, 16 hours after death.—Exterior: subject well developed, no emaciation. Muscles large and firm, of good color—much rigidity. Petechial spots on chest, shoulders, and loins, same as in life. Posterior portion of body shows a considerable number of livid patches—superficial, apparently in rete of skin. Chest well formed, and resonant on percussion. Abdomen moderately full and soft, without tympanites. Surface of shoulders, neck, and face, tinged with yellow.

Head.—A few points of dark blood on external aspect of dura mater. Longitudinal and lateral sinuses filled with black, fluid blood—arteries empty—the membrane itself normal; arachnoid transparent, and of usual thickness, with no effusion in its cavity. Pia mater natural; veins between convolutions distinct, moderately full and dark. No adhesion of membranes to each other, or to substance of brain. Surface of cerebrum slightly reddened generally. Cortical substance firm and of natural color. Medullary substance also normal in consistence and hue; its section presents only the usual minute dots of blood. Lateral ventricles contain their normal quantity of serum. Cerebellum natural. Base of brain natural. No unusual effusion in sub-arachnoid space. Medulla oblongata and commencement of spinal cord present nothing remarkable.

Neck.—Lining membrane of trachea is slightly reddened and covered with a thin reddish mucus—œsophagus normal.

Thorax.—Pericardium contains an ounce of thin, reddish serum; no adhesions to its contained organ. Heart of natural size; its walls of usual thickness and consistence; no reddening of its lining membrane; valves normal; a small quantity of coagulated lymph in left ventricle, coated with black, tenacious blood. A medium quantity of greenish yellow coagula in right ventricle. The blood contained in the cavities of the heart and in the aorta is unusually fluid and sily; its clot, when found, loose, easily broken down; the walls of large vessels smooth and shining, as though moistened by a fluid consisting of water and oil. No effusion into cavity of pleura. Lungs natural on anterior aspect, of grayish white color; crepitating on pressure. Right lung considerably engorged in lower and posterior portions of middle and inferior lobes. Left lung less congested than the other—crepitates in every part, with the exception of a portion of its apex to the extent of one or two inches, which is impermeable to air; no trace of tubercles discernible. Smaller bronchi filled with frothy mucus. Mucous membrane of large bronchi somewhat stained, but natural in consistence.

Abdomen.—A layer of fat, one half inch in thickness, beneath the skin. Omentum loaded with fat. Liver one-third larger

than usual. Color, externally and internally, and consistence, good—vessels gorged with dark, dissolved blood. No disorganization of structure in any part. Gall-bladder of moderate size, filled with greenish yellow, watery fluid. Spleen of natural color externally; five or six inches in length by three and a half in breadth; not softened; its contents dark and grumous. Pancreas normal. Stomach normal externally—contains a couple of ounces of thin straw-colored fluid. Around cardiac orifice, to the extent of about three inches, the internal surface is studded with minute red dots, the membrane being here somewhat softened—as also along greater curve for two-thirds of its extent. Pyloric third natural in color and consistence, the mucous membrane peeling off in strips of seven or eight lines in length.

Intestines, externally present slight discoloration along whole course of duodenum, some portions of jejunum and lower half of ileum, more in colon. Mesenteric veins dark, distinct and somewhat congested. Both small and large intestines nearly empty, containing only a grayish pultaceous fluid, adherent to their walls. Mucous membrane of duodenum reddened, with some thickening and softening. In the upper third of jejunum there is slight general congestion, but no manifest alteration of texture. Lower half of ileum slightly but uniformly engorged. Peyer's patches in half a dozen instances distinctly visible; with, in one or two instances, a little softening of mucous membrane, which softening also extends to adjacent surface. Colon contains no true fæcal matter—its mucous membrane healthy. Brunner's and isolated follicles not developed. Kidneys natural. Mesenteric glands firm and small, none exceeding a pea in size. Uterus and bladder normal.

Observations.—This case presents nothing remarkable, if we except the jaundice which made its appearance a short time before death—a complication occasionally observed, and which has generally proved untoward. Death took place at an earlier period than usual. The autopsy harmonized with those previously made, with the exception of the enlarged liver and spleen, which have not usually been noticed.

CASE VI.—John McLaughlin, 23 years of age, landed from

ship Washington in Quarantine on the 15th of Dec. last. On the 29th of the same month was admitted to the Deer Island Hospital, being then in the first stage of the fever. Had, at time of admission, the usual preliminary symptoms of typhus. Dec. 30th, complained of headache, with pains in back, limbs and loins, and general soreness of muscles, well characterized by the bruised feeling before mentioned—hot and dry skin, dusky hue of face and surface generally, universal sensitiveness of body, and an eruption of florid maculæ appearing on shoulders, chest and abdomen.

On the 5th day from admission all the above symptoms were aggravated. Spots petechial and cover whole body except face, hands and feet—pulse 112, weak, feeble, compressible—a strong, offensive and peculiar odor exhales from the whole surface. On the 7th day pulse 120 and scarcely perceptible—prostration very great. The pulse came down to 112 again on the 9th day, still feeble and compressible. On the 13th pulse was 100 and a little stronger—general appearance improved. This improvement was of short duration, the preceding conditions returning on the following day.

These symptoms of prostration and general depression of the vital energy increased throughout the remaining term of the disease, there being no particular determination of its force to any part. There was, throughout, a dull headache, injected conjunctivæ, and a tendency to delirium at night; but the cerebral symptoms were at no time very decided. There was some cough, accompanied with slight bronchial mucous rale, and dulness on percussion at posterior and inferior portions of the chest. The abdomen was throughout free from pain and tympanites. A tendency to constipation was constant. The patient died on the 22d January, being the 29th day from the accession of fever.

Autopsy 64 hours after death.—Subject is of medium size, well developed. Emaciation very great, muscles flabby. Chest full and resonant. Abdomen sunken. No petechial spots; general discoloration of depending portions of body.

Head.—On removing the calvarium, sinuses of dura mater are found moderately filled with dark fluid blood—a considerable number of small globules of blood sprinkled over its ex-

ternal surface, no thickening or other alteration of the membrane. Arachnoid transparent, of the usual thickness; contains in its cavity a very small quantity of effused fluid. Pia mater a little congested. Veins between convolutions of cerebrum distinct, filled with dark blood. No adhesions of membranes to surface beneath. The brain has a slight uniform redness on its surface. Cortical portion firm, of natural color. Medullary substance likewise of natural color and consistence; a horizontal section reveals numerous minute dark points of blood. Half a drachm of pure serum in each lateral ventricle. On the lower aspect of cerebellum veins are more engorged than elsewhere; substance of cerebellum normal. Base of brain presents nothing unusual.

Neck.—Lining membrane of pharynx slightly reddened. Œsophagus healthy. Some reddening of mucous membrane of larynx and trachea; its texture normal.

Chest.—Each pleura contains in its cavity an ounce and a half of reddish serum; no adhesions between their surfaces; pleura itself normal. Lungs anteriorly grayish white, dotted on the surface with minute mælanotic spots, on their inferior as well as posterior aspect of a deep red hue, which is more intense in the depending portions. The substance of posterior of middle, and posterior and lower portions of lower lobe in right lung, and the same portions in lower lobe of left, is considerably engorged; a section of these parts presents a bright red color, and the larger bronchial tubes here contain a very thick, tenacious pus-like mucus. In other parts the bronchia contain a thin reddish frothy secretion. The whole pulmonary tissue crepitates between the fingers; no traces of tubercle in any part. Diaphragm is stained in the parts corresponding with engorged lung, which rests upon it. Pericardium normal—contains no effused fluid—no adhesions of its surfaces. Heart of natural size and appearance—its walls firm; right auricle and ventricle contain a small amount of yellowish coagulated lymph; left ventricle has a small loose clot of dark blood; a similar clot extends into the pulmonary artery. Valves normal. The blood contained in the heart and aorta is dark, fluid and sisy. Commencement of aorta contains a large firm coagulum of greenish lymph.

Abdomen.—A very slight layer of fat beneath the skin.

Omentum transparent, its vessels well marked. Liver natural in size; a few superficial livid patches on its external surface, in other respects color natural—its structure firm, of natural color—vessels filled with a grumous oily fluid; under surface of left lobe, and to the extent of two or three inches around the gall-bladder on the right lobe, stained of a deep turtle-green color. Gall-bladder of a bronze hue externally, its internal lining also of the same color; distended with a thick tarry fluid, which holds in suspension numerous minute granules. Spleen three and a half inches in length by two and three-fourths in width, natural externally, its internal structure firm, reddish brown; interspaces filled with dark grumous fluid. Pancreas normal. Kidneys normal in size and structure—their infundibula coated with a tenacious puruloid mucus similar to that found in the larger bronchia. Stomach of medium size, discolored externally along its greater curve; contains two ounces of a thick yellowish fluid. The color of its lining membrane generally is a dirty white—around cardiac orifice and along the lesser curve to the extent of three or four inches, mucous membrane is injected in patches and softened—there is discoloration and also some softening in the lower portions of greater curve; pyloric third of greenish tinge, the mucous texture firm, peeling off in strips of ten lines. *Intestines* are somewhat discolored externally, more in lower half of ileum; colon of greenish tinge. Small intestines moderately filled with yellowish semi-fluid faecal matter. Internally, duodenum is discolored and slightly injected in points—jejunum normal—ileum along its lower third uniformly discolored, the hue deepening towards ileo-cæcal valve—veins of sub-mucous tissue in this portion distinct, dark, congested, which condition is more marked where the general discoloration is greatest—the mucous texture in this portion of the small intestine is also softened; near ileo-cæcal valve two or three of Peyer's patches were manifest, roughened not raised, darker than the surrounding surface, their mucous membrane entire but softened—higher up a few more were seen obscurely, and presented the dotted appearance before mentioned. Colon filled throughout with softened faeces, its mucous lining of greenish tinge somewhat softened throughout. No appearance of Brunner's or isolated glands. Veins of

mesentery distinct, moderately distended, dark. No alteration of mesenteric glands. Bladder about half filled with reddish yellow cloudy urine.

Observations.—In the preceding case the characteristics of the fever were strongly exhibited. The autopsy was necessarily deferred till a later period than usual after death; the increased discoloration in various parts, and the general softening of the mucous coat in the depending portions of the stomach as well as in a part of the small and throughout the whole course of the large intestines, seemed rather the result of cadaveric change.

The cases just presented are offered as fair examples of the fever witnessed in the epidemic under consideration. They are a few from a multitude of records made at the bedside, and are given with minuteness and particularity, to afford a faithful *portraiture* of the disease, as manifest under its ordinary phases, in its acute or primary forms. It is not our object to discuss here the nature of the phenomena thus depicted, and we pass on to some considerations of treatment.

The conditions attendant upon the advent of the fever were unfavorable to its management, at first. Coming, as it did, suddenly upon our shores, in the form of an epidemic hitherto almost unknown to us, it took the whole medical community by surprise, and for some time they were unsettled in opinion as to the nature of the malady, and the best modes of treatment. Especially were these embarrassments felt at the House of Industry, which was never intended as a receptacle for infectious diseases, and where the fever, in large amount, was thrust into wards already filled to their capacity with miscellaneous patients. Moreover, the medical force allowed at the Alms House department, at all times sufficiently limited, was wholly inadequate to the additional burdens imposed, while the constant demand at the bedside for the exertions of those still remaining fit for duty, left little time for study and investigation elsewhere.*

* The hospital accommodations at Deer Island were not provided till several months afterwards.

Patients were brought into the hospital directly from the ships, in every stage of the disease, and in all its forms and complications ; but very few were seen, at first, on whom the fever had not become firmly fixed, and their obtuseness and indifference was such, as to preclude all hopes of any rational account of themselves previously. All that could be done was to treat symptoms as they presented, and rely on observation and experience to furnish better means and resources for the future. As might be supposed, the ratio of mortality was at first fearful. But as time permitted the better understanding of the disease—as the influx of patients became more gradual and uniform, and better accommodations for the sick were provided, a plan of treatment was matured and followed with something like satisfactory success.

It was early apparent that here, as in most epidemics occurring among a class of people reduced by want and privations of every kind, pure air, cleanliness, and good nursing, were measures of primary importance. Bland nourishing food and drinks, given frequently in small quantities, were, in most cases, demanded throughout the whole course of the disease. Conjoined with such hygienic measures, the use of mild evacuants—of diaphoretics, nervous and arterial sedatives or stimulants, as the case might require, together with the usual means to mitigate the symptoms of fever—was all that constituted the general system of treatment. The details were varied according to the indications determined by the circumstances of the patient, the types and forms assumed by the disease, and the complications which arose during its progress ; so that while the general management of the case might safely be intrusted to the intelligent and faithful nurse, the intervention of the physician was demanded to obviate injury to the vital functions, and guard in turn each important organ on which the fever threatened to fall with its leaden weight.

It was soon manifest that the disease was eminently contagious among those much in communication with the sick. Measures were consequently adopted, with a view to prevent the spread of the disease. The fever patients were separated from the other inmates of the hospital, and placed in shanties erected for their accommodation, at a distance from main

building. The ventilation of these temporary structures was easily obtained, and it was found that patients in them fared much better than those in the hospital proper.

Before admission to the wards, each patient, who was in a condition to bear it, was subjected to the process of thorough cleansing by the warm bath, an operation the more salutary to the subject, as the majority of them, according to their own assertions, (which we are inclined to believe,) had never experienced this privilege before. As soon as the fatigue passed off, a grateful sense of relief and mitigation of all the symptoms followed. Add to this the unknown luxury of clean sheets and careful attendance, and the result was a positive improvement in the patient, whatever might be the stage of the disease.

As the epidemic advanced, and the fever began to spread by communication, opportunity was offered to study its course from its first inception, and to adapt our remedial measures to the various stages of its progress. The period of incubation in the subjects of direct contagion, could not be definitely determined. So far as our observation goes, it seemed to observe no fixed law in this respect, but to depend on the virulence or concentration of the poisonous element, whatever it may be, as also upon the power of resistance on the part of the person exposed. From certain premonitions, if carefully attended to, the recipient of the contagious influence could oftentimes himself determine when his system had become duly charged, and by prompt precautionary measures, still resist its specific impression. These indications are giddiness and a sense of faintness, and peculiar nausea and malaise, occurring suddenly after exposure to cases of peculiar malignity or offensiveness, or long continued subjection to the effluvia and exhalations concentrated in ill ventilated apartments. In such case, immediate resort should be had to a change of clothing, warm bath, pure air, and removal for a time from all associations connected with the disease.* No doubt there are certain

* The writer can illustrate this in one or two instances in his own case. Once was when called to plug the posterior nares in a patient who was brought into the last stages of the disease, and presented a combination of its most malignant phases. The operation here became necessary to save

conditions, mental and physical, that strongly predispose to the reception of the contagion, and its subsequent development. Irregularity of any of the functions, and fatigue of body and mind, thus act. So after the actual invasion of the disease, nothing is more unfavorable to the result than this previous intellectual and physical exhaustion, especially if there is added the depressing influence of fear. Perhaps to the presence of these conditions we must look for the cause of the greatly increased ratio of mortality among the physicians and medical attendants who become the subjects of the fever. Statistics will show that no epidemic or contagious malady has ever visited our shores, or sprung up amongst us, which has proved so fatal to the ranks of our profession, according to the number exposed. Certain it is that, in this latter class, conjoined to the ordinary loss of nervous vigor, there exists a greater amount of mental anxiety and despondency, resulting from the appreciation of their own case, from which, happily for themselves, the usual subjects of this disease are in great measure exempt. As before suggested, due attention to ventilation and cleanliness in the wards, the avoidance of crowded rooms for patients, and the instant removal of all forms of filth from about their beds, together with a judicious use of disinfecting agents, did much to lessen the chance of communication.

When the morbid impression has been fairly made upon the system, and the formative stage, as pictured in the preceding cases, had commenced, attempts were made to arrest or cut short its progress. To this end, a powerful emetic was directed, aided by the warm bath, and followed by vigorous friction and sinapisms to various parts. A purgative of oil in aromatic emulsion was added, sufficient to clear the digestive canal.

life; it was accomplished with much difficulty and delay, the inhalation of the foul breath of the patient meanwhile being unavoidable. Here the impression was strong upon the nervous system, and the sensations above described marked and unmistakable; a nurse who was assisting was affected in the same manner, and obliged to desist. This patient died on the following day. An immediate attention, on our part, to the precautions above named, dissipated the symptoms at once.

Most reliance was placed on the emetic, which usually consisted of ipecac in doses of 3 ss.; doubtless mustard would prove a good substitute, producing the requisite shock more speedily and perfectly, with less exhaustion to the general system. Should signs of gastric disturbance exist at the outset, the emetic must be omitted, and external derivative and revulsive measures, stimulating pediluvia, a sinapism to the epigastrium and frictions, only employed. How we are thus able to break the associated chain of morbid causes, we are at a loss to say. It is certain that well-marked instances of the invasion of the disease were thus arrested *in limine*. But if the case was not seen till the second or third day, or after reaction had supervened, it must run its course. Usually, in favorable cases, an indistinct crisis was observed at some period between the fourteenth and twenty-first day from its first manifestation. In the majority of fatal cases in the *primary* form, death occurred between the eleventh and seventeenth day.

At first, two distinct types of the fever were noticed, viz., the *exalted* or *dynamic*, characterized by intense excitement of the vascular and nervous systems, and the *depressed* or *adynamic* form, in which, from the outset, there was general depression of the vital functions. This latter form was much more frequent, and fixed the predominant character of the epidemic. Indeed it was rare that the former condition continued throughout the whole course of the disease, general or partial adynamia being liable at any time to supervene, giving rise to a class of *mixed* cases, which will be alluded to hereafter. Bearing in mind, then, the essential adynamic character of the affection, the general indication was to sustain the vital forces and guard the patient from death by asthenia.

Next, to protect the important vital organs.

Third. Modify existing symptoms, and minister to the relief of the sufferer.

Attention to the diet was an important consideration. The bland articles of nutriment—as arrow-root, sago, ground rice, panado, carefully prepared—were allowed during most of the acute stage, to which was occasionally added the lighter animal jellies, and, when prostration was marked, beef tea, and chicken and mutton broths, but always directed to be given in small

quantities, at frequent intervals, and their effect watched. Demulcent beverages constituted the principal drink of the patient. The appetite was mostly feeble. The case of Swain, noticed in the preceding examples, was a curious instance to the contrary. Perhaps, in the whole management of the fever, there was no more delicate and important point of consideration than how to provide for the sufficient and proper alimentation of the patient, without risking too much the irritation of the digestive mucous membrane.

When the patient was seen early in the disease, if he had not been previously violently purged (which was too often the case), a gentle cathartic of oil in emulsion, in amount sufficient to clear the digestive canal, was administered. This was found always to act kindly, and with sufficient effect to unload the bowels, while the risk of subsequent mischief was much less than from calomel or the more powerful purgatives in too common use. The same thing was repeated, or emollient enemata substituted, as occasion required, throughout the course of the fever. Venesection was rarely employed. Even when the reaction was excessive, and vascular excitement intense, it was deemed best to deplete by other means than by loss of blood. This conclusion was drawn from the prevailing type of the epidemic, the class and condition of its subjects, and the tendency of the disease at any time to sink suddenly from a state of apparent exaltation to that of depression of all the vital energies. When, therefore, violent vascular action was manifested, with burning surface, thirst, dry tongue, full and accelerated pulse, recourse was had to the administration of a mild solution of tartar emetic, and tepid sponging of the whole surface of the body. Often the milder refrigerants and the neutral mixture were substituted with good effect for the tartar-emetic, unless the bronchial or pulmonary tissues were involved. The intense cephalalgia was oftenest relieved by the application to the forehead of flannels dipped in hot vinegar and water; cold was sometimes preferred. Thirst was assuaged by demulcent drinks, or the effervescing draft, given frequently in small quantities. Frequent sponging, with tepid water or spirits and water, allayed the burning heat of the surface, to the great comfort of the patient. When the peculiar pungent

odor from the body, referred to in the preceding descriptions, was present, a mild solution of the chloride of soda was added to the mixture with good effect. Nausea and uneasiness of the stomach was relieved by a sinapism to the epigastrium. Sleep was induced at night by minute doses of the sulphate of morphia; from $\frac{1}{16}$ to $\frac{1}{8}$ of a grain of the solution, repeated once or twice at intervals of an hour, would often produce the desired effect. The general nervous disturbance where there was great sensitiveness, morbid vigilance, restlessness and subsultus, was allayed by camphor, either in the form of an emulsion, or the ordinary camphor mixture of the pharmacopæia. Not unfrequently would these means be followed by a gentle perspiration and relief of all the urgent symptoms.

As soon as signs of general exhaustion appeared, recourse was had to stimulants, which, once commenced, it was often necessary to continue throughout the whole course of the fever, even in the face of conditions commonly indicating an opposite plan. Nothing was more common than, while treating some serious local disturbance by depletive means, to continue at the same time vigorous stimulant measures, in order to keep the general system up to the vital point. Thus, oftentimes, would the patient seem to be borne along till the violence of the morbid influence was spent, and the *vis medicatrix naturæ* came kindly to his relief.

Of the stimulants, sherry and Madeira wines were chosen. Combinations of a stimulant and tonic often produced a better effect. A mixture of sherry and the solution of the sulphate of quinine in equal parts was made, of which from $\frac{3}{4}$ ss. to $\frac{3}{4}$ i. was given every two hours, as the case required, or as the patient could bear. When the system had been much accustomed to strong drinks, brandy was preferred. Ale and porter were sometimes given, but seemed to answer better in the convalescent stage, when they are much relied on to sustain the strength; beef tea and the nourishing broths were administered at the same time with beneficial effects. In the advanced stages of the fever, when there is present muttering delirium, coma, involuntary evacuations, a fluttering pulse, cold extremities and rapid sinking of the powers of life, there were superadded to the above treatment stimulating injections, hot

pediluvia, vigorous frictions to the spine, warmth to the surface, flying blisters, sinapisms to inside of thighs, legs and arms. The flagging energies would sometimes thus be arrested in desperate cases.

We cannot forbear, in this connection, to allude to a form of treatment first suggested and practised by Dr. Graves of Dublin in certain manifestations of typhus, and which was often employed by us in the epidemic under consideration. We mean the combination of tartar-emetic and opium given in the advanced stages of the fever. We are aware that much has been said in opposition to this treatment, as being empirical and irrational, equally potent for good and for evil, and many instances are cited in evidence of its uncertain effect. May not this be owing, in some measure, to a want of discrimination of the precise conditions that call for its use? With us it seemed particularly applicable to a class of patients in whom the disease assumed a *mixed* form, being a combination of the exalted and depressed types before alluded to; and when conjoined with much vascular excitement, manifested by a full, rapid, and bounding pulse, burning skin, hot head, and injected eyes, there was still evidence of the exhaustion of the vital energy, and the accompanying cerebral exaltation was not associated with inflammatory action. These conditions were present in many of our worst cases. They came in usually about the 10th or 12th day of the fever. The delirium was violent in its manifestations,—of that busy and active kind peculiar to delirium tremens, and wholly different from the coma and stupor accompanying the purely low form of the disease. Restlessness, violent jactitation, and prolonged vigilance were among its distressing accompaniments. The patient must soon wear out under the unnatural excitement. In many instances of this nature, the mixture of Dr. Graves seemed to produce the desired effect, when all other means failed. What guided us most, and seemed from experience a sure indication for its use, was the state of the heart's action. If, conjoined with the assemblage of symptoms first noticed, its impulse was sufficiently strong to withstand the sedative influence of the mixture, we unhesitatingly gave it, and looked with certainty for its beneficial effect. In many instances we

have seen patients thus apparently snatched from inevitable death. In view of these results, we could not forbear the use of means, the rationale of whose action we confess we do not fully understand.

The following examples, briefly stated, will show the condition of the patients thus treated, and illustrate the effect of the medication in question:—

CASE 7.—The first case we shall bring forward is that of Neil McNulty, who came a passenger in the ship Washington, and was landed at the Quarantine Station on Deer Island, Dec. 14th, 1847, being in the ninth day of the fever. He was a young man about 19 years of age, of vigorous habit and previous sound health. The vessel from which he was taken was crowded with the fever, and had encountered a long and stormy passage.

This patient had received no treatment. When he entered the wards livid maculæ were abundant over the whole body; he had a crisp, dry, contracted tongue; teeth and lips loaded with black sordes; hard, full, and very rapid pulse; pungent and burning heat of skin; peculiar nauseous odor from the body; hurried breathing, and involuntary passages of stools and urine. He had intense headache, flushed, almost livid face; a fiery eye, and great nervous agitation. In defiance of the usual modes of active treatment, he rapidly grew worse.

The following day delirium of an exciting kind came on, accompanied by incoherent muttering, and raving by turns. He had slept none since he came into the ward. All the symptoms before named were aggravated in degree. He was now ordered a combination of tartar-emetic, laudanum and camphor in the following form—

R. Antim. et tart. pot. gr. iv.
Tinct. Opii, ʒj.
Mist. Camphoræ viij. at.

Of this mixture a tablespoonful to be given every half hour till three doses have been taken, after that every hour till sleep ensues. A blister was also applied to nape of the

neck, and sinapisms to inside of thighs and legs. After the fourth or fifth dose of the mixture, the patient fell into a quiet sleep, which lasted eight or ten hours. He awoke wonderfully refreshed, and with all unfavorable symptoms manifestly relieved. The tendency to delirium was, however, still evident, and the general nervousness continued though in less degree. The antimonial mixture was here omitted for the greater part of a day, and other measures substituted; but the symptoms becoming aggravated, it was at once resumed, being now administered at longer intervals, and its effects carefully watched. From this time the patient passed rapidly on to convalescence and recovery.

It will be seen, that in this case we had to deal with a patient who had been neglected during the first eight or ten days of the disease, and on whom the fever had fastened with strong grasp, and developed its most alarming symptoms. Here were the burning heat of surface, the dry and crisped tongue, the irregular respiration, hard pulse, ferrety eye, and intense cephalalgia, which pointed to severe cerebral disturbance, with excited, nervous and vascular action.

At first we had directed our attention to the general condition, and plied vigorously the usual active remedies, being slow to adopt a practice which some had condemned as empirical and unphilosophical. In 36 or 48 hours after we find the whole condition of the patient worse. There is added, delirium and furious raving; the general subsultus increases, and there is persistent watchfulness,—symptoms which experience had taught us were most to be dreaded. At this juncture the mixture is tried as a last resort, and with almost magical effect.

CASE 8.—P. M., aged about 17, sanguine temperament, strong and robust frame; had been six months in this country. He was brought into the hospital on the 9th of December, when the fever had reached its 8th or 9th day. Had, on admission, maculæ of livid hue covering thickly the abdomen, chest, extremities and back; dry, harsh and burning hot skin; teeth and gums coated with black sordes; tongue swollen, dry and cracked, protruded with great difficulty; eyes red and suffused;

pulse 140, full and bounding; breathing frequent, difficult, very irregular, being in one minute double its frequency at another. A strong, disagreeable odor emanated from the body; urine and fæces passed involuntarily, and very fetid. He had furious delirium, talked and raved incessantly, and made frequent attempts to get out of bed; universal tremors and subsultus. He had slept none for several days. Directed to remove the hair and apply a large blister to the back of the head and nape of neck; stimulating pediluvia; sinapisms to the calves of the legs. Also, ordered a draught composed of four drachms of camphor water, five drops of laudanum and $\frac{1}{4}$ of a grain of tartar-emetic, to be given every hour till three doses have been taken; then to be continued every second hour during the night, unless sleep supervenes.

On the following morning it was found that no good sleep had been procured, but there was manifest improvement of all the symptoms. The delirium was calmer; the nervous agitation abated; pulse diminished in frequency, full and soft. The surface had become moist, but the intense pungent heat remained. The same plan of treatment was continued several days, the mixture being given at longer or shorter intervals, and in doses varying with the urgency of the symptoms. Two or three times it was omitted, but, matters invariably growing worse, was resumed always with benefit.

The crisis in this case was delayed till about the 17th day, and the patient seemed meanwhile to *rest* upon the tartar-emetic treatment. A favorable crisis now appeared and convalescence was fully established. This patient was three times blistered on the back of the head, and took twenty to twenty-four ounces of the mixture.

CASE 9 resembles in its main features the two preceding. The subject here was 45 years old, a strong and robust man, in full health previously, but addicted to intemperate habits. He first came under our notice on the 27th day of December, in an advanced stage of the fever. Had then livid maculæ on every part of the body, except the face and neck, but presented no symptom calculated to excite alarm, excepting a noticeable degree of general nervous agitation. He was ordered five

grains of camphor in emulsion every fourth hour; Dover's powder, gr. x., nocte.

Dec. 28th.—Got the value of half an hour's troubled sleep in all the night. Appeared in much the same condition as yesterday. Increase amount of camphor; sol. sulph. morphiae gr. $\frac{1}{8}$, repeated every hour till half a grain is taken, unless sleep is procured; blisters; sinapisms.

Dec. 29th.—Patient has had no sleep since last visit. The nurse reports him to have been exceedingly restless and troublesome during the night. This morning appears in a state of active and busy delirium, closely resembling that seen in the subjects of delirium tremens. There is constant and universal tremor, violent raving and struggling; the eyes in rapid motion, glistening and ferrety from constant wakefulness; jactitation extreme; pulse scarcely to be counted. When asked to put out his tongue, it is protruded quickly and withdrawn with a jerk, accompanied with a violent closure of the jaws. Answers questions and obeys directions with alacrity, but relapses instantly into a state of busy delirium. The preceding prescriptions having failed of their usual effect, he was ordered a mixture composed of camphor water \mathfrak{z} viii., tartar-emetic gr. ii., tinct. opii \mathfrak{z} ii. Of this to take \mathfrak{z} ss. every hour till the effect is manifest.

Dec. 30th.—Nurse reports that after the 3d or 4th dose of the mixture the patient fell into a deep and quiet sleep, which continued with one interruption till a late hour in the morning. Appears now every way improved; delirium wholly gone; face more natural; exhibits only a slight degree of nervous tremor. Directed gr. $\frac{1}{8}$ antimony in \mathfrak{z} ss. camphor emulsion every fourth hour.

Dec. 31st.—Still improving; some nervous agitation yet apparent; other unfavorable symptoms gone; to continue prescription of yesterday at shorter intervals.

January 1st, 1848.—Convalescent.

The preceding examples will show very fairly the operation of this treatment, though by no means our worst cases. The notes of several others, far more interesting and desperate, have been mislaid. The relative quantities of antimony and opium must be varied according to the circumstances of the

case. The camphor mixture is usually the best vehicle for administration. Should this be contra-indicated, pure water may be substituted. The mixture has often the effect, after three or four doses given in the manner above described, to produce gentle but copious evacuations of yellow fæcal matter from the bowels, with great relief to the patient. We would again mention the need of judgment and discrimination in the employment of this mode of treatment. Our own experience dictates it should only be used in cases where the assemblage of conditions previously named are present. Then it is invaluable.

Complications and incidental affections occurring in the acute stage.—These vary in their nature and degree of severity in different epidemics. In that at present under consideration, the brain and spinal cord were oftenest implicated. All the important viscera of the chest and abdomen were, however, liable to be attacked. Various anomalous symptoms would also appear in the course of the disease, which called for the exercise of care and discrimination in the use of remedial measures.

The modes of treatment adopted when the violence of the disease was determined to the head, have already been described. When the symptoms indicated that the base of the brain and medulla oblongata suffered most from the morbid effect, and there was perversion of the senses, and feeble and irregular respiratory action, with weak and *thready* pulse and nervous depression, local counter-irritation and revulsions were conjoined with measures to counteract the general debility. Hot wine whey, or brandy, or both, flying blisters to various parts of the trunk, frictions along the spine and especially over the respiratory tract, sinapisms and stimulating pediluvia must be pushed boldly. Especially have we seen the best effects result from the application of a sinapism, or flannels wrung in hot water or aqua ammonia over the region of the medulla oblongata, and energetic friction of the spine between the shoulders, in cases of inequality and exhaustion of the respiratory power.

Laryngitis was seldom or never noticed. Bronchitis, alone or combined with partial pneumonia, was common, especially

towards the close of the epidemic. Here, however, the symptoms were more those of congestion than active inflammation. There was a want of action rather than the overaction which characterizes these affections when a distinct disease, and the impediment to free aeration of the blood from accumulation of the altered secretions in the bronchial terminations, was more to be feared than structural alteration. Hence the indication was to excite and stimulate the general action, while we sought to deplete and relieve the overloaded vessels of the parts involved by specific medicines and local applications. Dry cupping to various parts of the chest, blisters cautiously applied, irritants to the spine, and internally tartar-emetic in solution, were the means employed. Cough was allayed by expectorants of senega and squill. Wine and bark supported the general strength. These affections were the chief point of danger in subjects having a tendency to pulmonary complaints. Such patients often succumbed at an early period of the fever. In all the post-mortem examinations of typhus, there were marks of more or less congestion in the bronchia and lungs.

Gastritis, of a low form, was sometimes manifest. It was sometimes relieved by the administration of cool mucilaginous drinks, and ice in small quantities, with a sinapism or blister to the epigastrium. Leeches were sometimes indicated. The liver was not unfrequently affected, as manifested sometimes by depraved secretions, but more often by a total want of secretion. This condition of things would also, at times, be accompanied by suppression of urine, and greatly increase the dangers of the case. Diarrhœa, in the acute stage, was not common. When present, it indicated the existence of irritated ingesta, and called for the employment of a mild, oleaginous purgative, with mucilaginous drinks, and fomentations to the abdomen. An opiate enema was sometimes required. Tympanites was also rarely seen, and then, could usually be traced to undue purgation, and inattention to diet, in patients admitted at an advanced stage of the fever. Too much indulgence in fluids, especially acid drinks, would bring it on occasionally. It was best treated, as suggested by Dr. Graves, by a turpentine stupe applied to the abdomen, and also the internal ad-

ministration of turpentine, either by the mouth, or in the form of an enema.

Erysipelas of a non-malignant type occurred in a few instances.

Swelling of the parotid was an occasional concomitant of the fever, and proved a most troublesome and painful affection. It made its appearance towards the latter stages of the disease. Both glands were sometimes affected at the same time. They were found difficult to discuss by the usual measures; laying them open by the scalpel seemed to produce but little good effect. Most relief was produced by fomentations with hot vinegar, and infusion of hop. They commonly went on to supuration, to the great annoyance and suffering, and extreme exhaustion of the patient. This affection occurred oftenest in the scrofulous habit, and when the patient had undergone a combination of privations previous to admission to the wards.

In two or three of the most malignant cases, hemorrhage from the nostrils took place, which was uncontrollable except by plugging the posterior nases. In this way, the patient's life was sometimes prolonged a few hours; the blood which flowed was in a state of absolute putridity.

Spasms and convulsions were noticed in a few instances, and were almost invariably fatal symptoms. They existed in an aggravated form in the case of Capt. Chandler, the superintendent of the House of Industry, who died at that institution of typhus in June 1847.

A curious affection, which often presented at some period of the convalescence, was the occurrence of severe aching pains in the extremities. These pains were represented by the patient as very violent, and (it was frequently remarked) occasioned more complaining on the part of the sufferer, than any other symptom throughout the whole course of the disease. They were referred chiefly to the bones of the legs and arms. At first they were disregarded, but afterwards successfully treated with the solution of the iodide of potassium, an experiment suggested by Dr. Stedman (then superintending physician to the hospitals at South Boston), from the known efficacy of this remedy in the pains of tertiary syphilis, to which, both in kind and degree, those in question were strongly analogous.

A few doses often sufficed to give complete and permanent relief.

Sequelæ, or secondary affections of typhus.—We have before alluded to the severe parotitis which sometimes presented, and which, perhaps, should rather be classed among the sequelæ or secondary effects of the disease, inasmuch as it came on at a late period, and seemed a residuary action of the previous poison in a vitiated system. Sloughing ulcers upon the scapulæ and sacrum occurred in some protracted cases. They were best treated by a strengthening diet, tonics, and the application to the parts of antiseptic and astringent washes.

But by far the most grave and frequent sequel to the fever, (and which, in our own mind, is deserving of equal consideration in its pathology and treatment with the acute stage,) was the peculiar *intestinal affection*, to which allusion has been made in a former part of this paper. It commonly made its appearance during the latter stages of convalescence, and was brought on by imprudence in diet, especially if accompanied by premature exposure to cold and wet. But sometimes it could be traced to no satisfactory cause. Its importance in a therapeutical view will be recognized, when we state that, at both the hospitals named, it was the cause of the majority of all the deaths that occurred from typhus, up to the time the autopsies, detailed in the following cases were made. To the consideration of this affection, the attention of the writer was early directed at the House of Industry in the spring of 1847. Its intractability to the ordinary remedial measures, and its almost invariably fatal termination were well calculated to rouse inquiry and investigation. We had been able to find no account of its morbid anatomy among the British writers, and had, up to this time, made no post-mortem examination of such cases. With a view to ascertain, if possible, the pathology of this sequel to the fever, on which might be based a rational plan of treatment, a series of clinical and autopsical investigations were instituted, the results of which are given in the pages which follow. These results, so far as we can learn, had previously been unknown, or wholly overlooked. To our view, they have an important bearing on the therapeutical management of the fever, in both its primary and second-

ary forms, and will tend to throw light upon the mooted points in its pathology.* The autopsies of the next few cases represent fairly the pathological phenomena found in the secondary disease.

CASE 10.—Catharine Cochland, 24 years of age, born in Ireland, was admitted to Deer Island Hospital 22d Nov., 1847. She was of medium size and stature—rather delicate constitution, with a tendency to the scrofulous diathesis. She had been eight months in this country. When first admitted to the wards she was laboring under a severe attack of maculated typhus, which had then reached the sixth day. From this she recovered without any marked phenomena, with the exception of a slight attack of diarrhœa, which came on in an advanced stage of the fever, but yielded readily to the usual remedies.

During the latter period of her convalescence she partook freely of forbidden articles of diet, which was followed by diarrhœa in an aggravated form. This state of things she carefully concealed for two or three days from her nurse and medical attendants, when her rapidly failing strength attracted notice.

This was on the 23d December, at which time she had frequent discharges of thin, yellowish white frothy liquid, of very fetid odor. She had a flabby red tongue, feeble pulse, cool skin, and great general prostration, but complained of no pain. Her abdomen was full and soft, somewhat tender on pressure.

Dec. 24th.—No improvement—prostration great—stools frequent, very fetid, assume a darker hue—are mixed with large quantities of depraved secretions.

* The writer deems it proper to remark, that the peculiar pathological conditions described in this paper, and shown in the accompanying plates, are the result of his original observations and researches, though they have subsequently been alluded to and quoted by authors in a manner that did not leave this fact entirely clear. They were first noticed by him at Deer Island Hospital, in December, 1847, while pursuing a system of dissections in typhus, aided by Dr. C. A. Walker one of the resident physicians at that institution; previous to which time, no autopsies of this disease had ever been made on the island.

For three or four days following no improvement was observed; stools became more frequent, dark and offensive—strength rapidly failed. She died Dec. 30th, 6 o'clock, A. M.

Autopsy, 12 hours after death.—But little emaciation; no wasting of muscles; very slight depression of supra-clavicular region, more apparent on left side—in other respects chest presents nothing remarkable externally. Some tympanites of abdomen.

Interior of head, neck and thorax not examined.

Abdomen.—A layer of fat a fourth of an inch in thickness beneath the skin. On removing the integuments, contents of the cavity presented nothing remarkable externally. Omentum contained a moderate quantity of fat. Liver perfectly normal. Gall-bladder normal in size and appearance externally; filled with a dark, tenacious, tarry fluid. Spleen of natural size, color, and consistence. Pancreas normal. Stomach normal externally, contains half-a-pint of thin, greenish fluid; internal lining membrane of healthy color and consistence; natural secretion abundant.

Intestines.—Externally, discolored from about the commencement of the ileum, onward throughout the remainder of their extent. This apparent discoloration seemed rather an opacity of the walls, resulting from the affection of the internal lining membrane; it was most marked along the lower three feet of ileum. There were extensive old adhesions of ascending colon to parietes of abdomen. Internally, duodenum normal. Jejunum somewhat congested and discolored at its lower portion. Ileum has its internal lining uniformly discolored and congested; in its upper third the membrane becomes sensibly thickened, which thickening gradually increases till within two or three feet from the ileo-cæcal valve, when it continues for the remaining distance the same. From about five feet above ileo-cæcal valve downward, the mucous membrane puts on a peculiar appearance. The thickening here amounts to real hypertrophy, and appears in the form of transverse *ridges* thickly crowded together, completely encircling the intestine, and raised from a line and a half to two lines above the general surface; these ridges terminate abruptly at the border of Peyer's patches, giving to them a depressed appearance, which

at first led to the supposition that they were ulcerated or otherwise altered from their normal condition ; but on a careful examination these glands were found unaffected, the mucous membrane over them being entire and normal.*

The Large intestine in the cœcum, ascending and first half of transverse colon, reveals its internal lining somewhat thickened, with occasional patches of ulceration not extensive or deep ; from about the middle of transverse colon these superficial ulcerations become more numerous ; near the angle formed by the transverse and descending portions, the thickening is suddenly much increased, with hypertrophy of the muscular coat, much diminishing, for the space of a couple of inches, the calibre of the tube. This last has the appearance of being an old lesion. Just above this point the intestine is sacculated, and the ulcerative points more numerous, deep and extensive. Along the descending colon and upper half of the rectum the ulcerations and thickening are still more manifest. The internal surface of this intestine is blackened throughout. The ulcerations are confined to the mucous coat, irregular and varied in size, covered with a foul sanious exudation.

Of the mesenteric glands, some few at upper portion exhibited chronic enlargement, apparently of long standing ; two or three towards lower portions of ileum were slightly enlarged and evidently somewhat inflamed—while others still were partly filled with tubercular matter, both in its crude and softened state. The glands of Brunner and the isolated follicles were not noticed.

Remaining contents of abdomen normal.

The patient complained of very little pain throughout. The intellect was unaffected.

The interior of the head and chest were not examined, the autopsy being necessarily made in the evening, after an unusually laborious and depressing attendance in the fever wards of the Hospital. From the constitution and previous history of the patient, we might infer that considerable alterations would have been found in the lungs—but it is not probable

* See Plate I.

that either the chest or head would have revealed changes having any important connection with the peculiar lesions found in the intestinal tract.

CASE 11.—James Warnock, aged 37, in previous good health, was admitted to Deer Island Hospital Dec. 6th, with fever. He had been several days ill.

It was a marked case of maculated typhus, of medium severity. There was no diarrhœa during the acute stage. The disease was of the average duration.

The patient recovered from the fever with no untoward symptom. He had been transferred to the convalescent ward, and for two or three days had been able to leave his bed and walk about the room. He had a strong appetite, and, contrary to injunctions, partook prematurely, though in moderate quantity, of solid diet. Immediately after (the 2d of January), he was seized with diarrhœa. He had at first six or eight discharges in the twenty-four hours, liquid, yellowish, and slimy. After two or three days the stools increased in frequency, deepened in color, were mixed with depraved secretions, became reddish, and finally almost black and very offensive.

The patient complained but little of pain in the abdomen; there was no tympanites, and slight tenderness on pressure. His strength failed rapidly, and he died January 11th, at 8 A. M.

Autopsy, 48 hours after death.—Subject well developed, large, muscular. Emaciation not marked. Chest large and full. Abdomen sunken, but not discolored.

On removal of integuments, contents of abdomen present the following appearances: Omentum contains a medium quantity of fat. Liver externally of somewhat deeper color than natural, its parenchyma congested but not disorganized. Gall-bladder large, distended to the utmost with a thick, tarry fluid. Pancreas, spleen and kidneys, normal.

Stomach normal externally; contains a pint of thin, grayish fluid. Internal lining covered with a grayish, tenacious mucus; mucous membrane itself slightly injected near pyloric orifice, otherwise normal in every part.

Intestines.—Externally there appears some discoloration of

duodenum, and upper part of jejunum, more at lower half of ileum, descending colon and rectum. Both small and large intestines contain in every part a grayish, pultaceous fluid, in considerable quantity. A few small collections of faecal matter, in color and consistence like chocolate, found in lower portion of ileum. Veins of submucous cellular tissue a little engorged in duodenum, and upper part of jejunum; mucous membrane in these portions natural, as also throughout remainder of jejunum and upper half of ileum, from which point injection begins to be marked, accompanied by thickening. This condition of the membrane increases till within about two and a half feet from ileo-cæcal valve, when both the congestion and thickening become strongly marked, appearing here and there, for the space of a few inches in extent, in the form of transverse lines raised from the general surface. Near the ileo-cæcal valve, to the extent of four inches, this ridged appearance is remarkable—the elevations being from a line to a line and a half in height, and one or two lines in breadth. Within a couple of inches of the cæcum are observed a few points of ulceration, of the size of a pin's head, extending partly through the mucous coat. In but one instance are Peyer's patches visible; it here presenting in a slight degree the shaven-beard appearance, the thickening elsewhere noticed ceasing at the border of the patch, giving it a depressed appearance. The cæcal extremity of colon shows considerable congestion and thickening, with commencing points of ulceration; these appearances increase along the ascending and transverse portions, and are still more marked in descending portion and upper part of rectum. None of the ulcerations in this case exceed in size a split pea; they are confined to the mucous coat.

There is no alteration of mesenteric glands. Remaining contents of abdomen normal.

CASE 12.—Patrick Lochlin, 25 years of age, was admitted to Hospital on Deer Island, Oct. 20th, being then in the initiatory stage of the fever. His previous health had been good.

The fever was well marked, severe and protracted. Convalescence was proportionally slow, but complete. The patient

had left the wards, and had been engaged in out-door employment for two or three days, when diarrhœa set in. This was on the 12th of December. The discharges at first amounted to not more than four or five in the twenty-four hours. They were liquid, yellowish, mingled with mucus, not very offensive. Once or twice they were checked by the powders of ipecac, and opium, assisted by the acetate of lead. The abdomen was sunken, somewhat tender on pressure. The symptoms gradually assumed a graver character; prostration became marked; the stools were more frequent, darker in hue, became mingled with depraved mucus and blood, and were very fetid. For the last four or five days they were of a slaty color, passed almost constantly and involuntarily.

Death occurred on the 13th January. The patient had throughout no tympanites, and the soreness and tenderness on pressure were not very marked. He made no complaint, but bore upon his face a peculiar expression of anxiety and suffering. His intellect was unaffected.

Autopsy, 4 hours after death.—Subject of medium size, well developed; much emaciation. Chest full, resonant. Abdomen sunken; but a thin tissue of fat beneath the skin over chest and abdomen.

Cavity of abdomen.—Omentum free from fat. Right lobe of liver a little darker than natural externally; structure of same lobe rather darker than usual in its right half; in other respects this viscus normal. Pancreas normal. Spleen natural in size; its texture disorganized to the extent of an inch and a half on its upper extremity, and presents here a superficial abscess three quarters of an inch in diameter, filled with ill-conditioned pus. Kidneys normal. Stomach externally normal; contains a pint of thin greenish fluid; its mucous lining, to the extent of three or four inches around cardiac orifice, studded with minute red points, mostly gathered in clusters from half to three quarters of an inch in diameter; its texture normal in all its extent.

Intestines.—Externally appear a little discolored in duodenum and first part of jejunum; this dark color (opacity) becomes evident again and more marked at beginning of ileum and increases as we descend the tube; in large intestines it is most apparent in descending colon and upper half of rectum.

Duodenum and upper portions of jejunum contain a greenish fluid: ileum and colon moderately filled with a grayish semi-fluid matter adherent to their walls. Mucous membrane of duodenum is considerably congested; that of upper portion of jejunum is also darker than usual, but presents no marked injection or thickening; texture normal. Valvulæ conniventes in their natural condition.

In the upper portions of ileum the dark color and thickening of mucous membrane becomes manifest; these conditions decrease as we descend the canal, and are most marked about four feet above ileo-cæcal valve. The thickening along lower two thirds of ileum assumes the form of rough, prominent ridges, blackened on their summits. These prominences are at first inconsiderable, and separated by an interval of three to six lines; farther on they are increased in number, as also in breadth and height; four feet above ileo-cæcal valve they resemble hypertrophied valvulæ conniventes, being a line apart, and elevated from one to two lines, hard, some of them serrated on their summits; they continue thus till within two or three inches from the cæcum. The ridges extend completely around the intestine unless intercepted by the patches of Peyer, in which case the elevation terminates abruptly at the border of the patch and recommences on the opposite side. The patches are therefore apparently depressed; and are covered with a dark coating of depraved secretion, which is readily scraped off by the scalpel, revealing the membrane beneath entire. At the junction with the cæcum, for the space of three or four inches, the mucous surface appears roughened, granulated, with here and there a few thin flakes of a lymph-like substance. Some few of the solitary glands are here visible, raised and somewhat reddened, and interspersed are a few points of ulceration.*

The cæcum exhibits the solitary glands enlarged, inflamed, surrounded each with a distinct red border, the central point being in some instances ulcerated; there is also thickening and injection of the mucous lining, with accompanying hypertrophy of the muscular coat. These conditions observed along

* Plate I. figs. 3 & 4, and plate II. fig. 1.

the ascending colon—less in its transverse portion—again very marked in descending portion. The interior of large intestine throughout is much thickened and roughened; in the descending colon and upper part of the rectum the mucous coat is extensively ulcerated.*

No alteration of mesenteric glands. Remaining contents of abdomen normal.

CASE 13.—Michael McCall, aged 23, was admitted to Deer Island Hospital on the 28th December—three days ill. The fever was distinctly marked, though of a mild form. It early assumed the depressing type, demanding after the first week the cautious but constant employment of stimulants and tonics. The disease was of short duration. It presented no distinct crisis, was marked by no delirium, no diarrhœa or tympanites. Convalescence was rapid and complete. On Sunday, January 10th, permission was given the patient to dress and walk about the wards. This he did, however, for the first time on Tuesday following. Next day the nurse reported him to have had, during the night previous, four large liquid yellow stools. He complained of no pain. Abdomen slightly tender on pressure; no tympanites. It was found upon inquiry that he had partaken the day before of forbidden articles of diet. The stools increased in frequency. On Friday night following they became dark, bloody, jelly-like and extremely offensive. He was greatly exhausted. Patient complained of but little pain; there was no meteorism; intellect clear throughout. Death took place about noon on the 23d.

Autopsy, 48 hours after death.—Externally—but little emaciation; marked rigidity; no discoloration of surface; chest full and resonant; abdomen sunken.

Abdomen.—Adeps one fourth of an inch in thickness beneath the skin; omentum has also a medium quantity of fat. Liver of usual size and color; superficially shows a few stains like ecchymosed spots; texture normal; vessels filled with fluid black blood. Gall-bladder distended with a tenacious molasses-like fluid. Spleen rather below the average size; color and texture normal. Pancreas and kidneys healthy.

* Plate II. figs. 2, 3.

Stomach.—Externally normal ; uniform reddening, extending along most of lesser as also cardiac half of greater curve, is seen through the translucent outer coat. Contains in its cavity five ounces of grayish fluid. Its internal lining thickly studded with minute red points in those portions corresponding with the apparent reddening externally.

Intestines.—Externally, duodenum and jejunum natural ; ileum and colon appear somewhat discolored throughout whole extent—no considerable opacity of their walls. Jejunum and ileum empty, and somewhat contracted. Large intestines contain only a pultaceous grayish matter. Internally, duodenum and jejunum normal ; in upper portion of ileum congestion becomes manifest, and from about its middle, onward through all its extent, lining membrane of ileum is much injected, thickened and opaque. In one or two instances only, to the extent of three or four inches, the thickening appears in the form of elevated transverse lines, only partly encircling the intestine, and from four to six lines apart. This is about the commencement of lower third of ileum. Peyer's patches are in several instances distinctly visible, but not materially altered. Brunner's and isolated follicles not developed. The large intestine shows its mucous lining throughout injected and thickened. In descending colon and rectum these appearances are most remarked, the lining membrane being here intensely reddened in patches and thickened irregularly.*

The solitary glands are also manifest in descending colon, slightly raised and inflamed, appearing like minute pustules on the surface of the membrane. No ulcerations noticed in any part of intestinal tract.

Mesenteric glands small and firm. Remaining contents of abdomen normal.

CASE 14.—Philip McGonagle, æt. 16, of sanguine habit and strong make, was admitted to Quarantine Hospital Dec. 9th, about the eighth day of fever. He had all the symptoms of maculated typhus in a marked degree. The fever continued, with uncommon severity, nine days longer, when a distinct crisis occurred. There was no diarrhœa in the acute stage.

* Plate II. fig. 3.

Convalescence had gone on rapidly and favorably till the 1st January following, at which time the patient had an imperfect relapse; from this, also, he recovered completely, and had been allowed to dress and walk about the room. His appetite was strong, but he was restricted to the use of bland farinaceous articles, together with the lighter broths. This injunction, however, he did not regard, and found means to partake rather freely of solid diet.

About this time, forty-five days from the first accession of fever, and fifteen from the period of relapse, he was seized with secondary diarrhœa. There were at first five or six discharges in the twenty-four hours, copious, liquid and slimy, unattended with much pain. There was no tympanites and but little tenderness on pressure. The symptoms increased daily in severity. Patient failed rapidly in strength. His countenance assumed a peculiar expression of anxiety, stools became more frequent and fetid, were mixed with depraved secretions and with blood, and for two or three days preceding his death passed involuntarily. In the latter stage of the affection there existed constant dull pain in the bowels, and considerable tenderness on pressure. The mind was unaffected.

Death occurred Monday, January 24th, at 2 A. M.

Autopsy, 32 hours after death.—Subject of medium size, much emaciated. Considerable rigidity of muscles. Chest capacious, resonant. Abdomen sunken and discolored. Sub-cellular tissue of chest and abdomen contains but little fat.

Cavity of abdomen.—Omentum thin and transparent. Liver natural in size; superficially around gall-bladder, as also on most of under surface of right lobe, of deep bluish-black color; structure normal. Gall-bladder greenish yellow externally; moderately distended with a fluid like molasses in consistence and color. Kidneys healthy. Spleen a fourth larger than usual, natural externally; contents dark and grumous; structure natural.

Stomach contains a pint of greenish watery fluid; its mucous lining shows nothing remarkable.

Intestines.—Externally ileum appears discolored along its whole course, in lower two thirds opaque; veins along line of mesenteric attachment distinct, dark, congested. Colon uniformly

discolored, of greenish tinge. Ileum and colon moderately filled with a grayish pultaceous mass. Internal lining of duodenum somewhat darker than usual; that of lower portion of jejunum slightly reddened in patches. In upper portion of ileum injection becomes uniform and marked, and a tendency to thickening in the form of transverse parallel lines is apparent; throughout its lower two thirds, with the exception of an occasional interval of three or four inches, well-marked prominent ridges appear, completely encircling the cavity of the intestine, unless broken by the intervention of the patches of Peyer.* At first these ridges are about half a line in height, the same in breadth, and three or four lines apart. About seven feet from ileo-cæcal valve they are more numerous, broader and more prominent; two and a half feet lower they attain their maximum, being at this point crowded thickly together, a line and a half in breadth and two lines or more in height. On their summits is a greenish-black deposit, which can be readily scraped off with the scalpel. The interspaces are brilliantly injected high up in the ileum, while its lower portions present a dark uniform congestion. The ridges do not exist within three or four inches of valve. The glands of Peyer are distinctly seen along whole course of ileum, like white patches depressed, presenting the indented and dotted appearance, their mucous covering entire. Brunner's and isolated glands not discernible. No traces of ulceration in any part of small intestines.

In the cæcum the isolated follicles are seen appearing like minute dark points. Throughout the colon thickening is very marked, and appears in irregular elevations, blackened on their summits. In the interspaces is seen the same vivid injection noticed in the upper portions of ileum. Here and there are appearances of a lymph-like exudation, but which cannot be scraped off by the scalpel. These conditions are less marked in the transverse portion. The rectum is uniformly blackened and much thickened. A few superficial ulcerations of the size of a pin-head are scattered throughout the large intes-

* Plate I. figs. 1, 2, 3.

tine.* Mesenteric glands firm, varying in size from that of a millet seed to a large pea. Bladder normal.†

The average duration of the fever in the five cases first adduced, was sixteen days; that of the secondary affection, thirteen days. The period in the convalescence in which diarrhœa first manifested itself, was the nineteenth day; and from the first accession of fever, the forty-seventh, which last two conditions would fall short were a larger number of cases given.

It will be seen that, in addition to the alterations in the large intestines, certain well-marked and peculiar lesions found in the *ileum*, characterize the pathology of the secondary affection. In all the subjects examined, these lesions were more or less developed. They are found very prominent in three of the five cases above presented, less marked in the other two. It is worthy of notice, that, in the latter, the preceding fever was milder and of shorter duration.

It would seem that there exists an intimate connection between the conditions of the intestinal tract in primary typhus, and the changes which occur in the small intestines in the secondary disease: the latter correspond in situation with the uniform congestion and discoloration pointed out in the preceding autopsies of subjects that died in the acute stage of the fever. From these analogies, we were led to reflect upon the probability of a particular direction to these parts of the morbid influence from the first, and thereby induced to modify our treatment in the acute stage, so far as to avoid, from the commencement, all that could irritate these sensitive portions of the digestive tube, whether as food, drink, or medicines; believing that these specific morbid effects could better thus be avoided than remedied when once induced. We had before been accustomed, in the formative stage of the fever, to give in conjunction with an emetic, a strong purgative, with a view

* Plate II. figures 2 and 3.

† These cases are taken from an article by the writer published in the January and February numbers of the Boston Medical and Surgical Journal for 1848, entitled "*Clinical Notes and Post-Mortem Illustrations of Typhus or Ship Fever.*"

to aid, by the revulsive effect thus produced on the intestinal surface, in arresting the course of the disease in limine. But after the discovery of these peculiar pathological conditions of the secondary affection, this practice was wholly abandoned. None but mild oleaginous purgatives were prescribed, and the blandest nutriment and drinks allowed from first to last, both during the active period of the fever and the stage of convalescence. The effect of this change was immediately apparent. The ratio of mortality (in the belief of the writer) was diminished at least one-third.

For a more perfect understanding of these important lesions, the attention of the reader is directed to the accompanying lithographs, which were obtained from daguerreotype impressions, taken by Mr. J. A. Whipple from the specimens themselves, immediately after their removal from the body.* Sections of the whole portion of the intestinal tract affected are given in order, beginning at the upper part of the ileum and ending with the sigmoid flexure of the colon; showing with exactness and fidelity the morbid appearances discovered in the cases first described.

No form of treatment adopted during the actual occurrence of the dysenteric affection proved satisfactory. The following seemed the best, after repeated trials: Diet restricted solely to the use of unirritating articles; mucilaginous drinks only allowed. External irritants applied freely to the abdomen, of which the turpentine stupe seemed to answer best. Internally, the medication consisted of the administration of Dover's powder in small doses frequently repeated, and of opium combined with the acetate of lead. This last combination seemed to produce more effect than the usual opiate remedies heretofore employed. Conjoined with these measures, recourse was had to injections of starch mucilage, alone and in combination with laudanum, or the nitrate of silver in solution. Efforts were made to apply these remedies more directly to the parts implicated, by first introducing a flexible tube far up into

* Several accurate colored sketches of these lesions were also made by Mr. Seagur, the artist, which are deposited in the Pathological Cabinet of the Boston Society for Medical Improvement.

the intestine, to which a syringe was attached, and thence the contents forced into the bowel. As the vital energies flagged, stimulants were given, warmth applied to the extremities, and sinapisms and flying blisters to various points.

Treatment during convalescence.—We have stated in the preceding pages the period in convalescence when the secondary diarrhœa was most likely to occur. The patient could not be considered safe till the expiration of three or four weeks from its commencement. Too much care as to premature exposure or indiscretion in diet, however slight, cannot be observed. The appetite meanwhile is of course craving.* Demulcent drinks, especially solutions of gum arabic, seem well adapted to this period, being nutritious and at the same time unirritating. The milder farinaceous articles should be added by degrees. Relapses of the *primary* fever were invariably milder and of shorter duration than the first attack; the febrile action would run high for a few days, but the graver symptoms were not present. The maculæ did not reappear. We do not recollect to have witnessed a second attack of genuine typhus after a full recovery.

We have thus endeavored to give briefly the results of our personal experience and researches in this fever during the year of its first extensive appearance upon our shores as an epidemic. Its general history, nature and pathology, could not be fully considered in this connection but by making this dissertation longer than is consistent with its publication here. These observations extend to about sixteen hundred cases which came under our treatment.

During the past season the writer has had opportunity to witness the fever as it appeared at the Emigrants' Hospital on Ward's Island and the Marine Hospital in New-York. The main features of the disease at these stations, so far as could be ascertained, harmonize well with those in the epidemic above described. The secondary dysenteric affection had existed, and was of a similar intractable and fatal type.

* On one occasion several convalescent patients under these restrictions escaped from the wards at night, and gained access to a neighboring corn-field, where they partook freely of the unripe fruit. The fatal diarrhœa soon followed, without mercy.

Erysipelas and extensive swelling of the parotid glands had been frequent during the past season.*

The whole subject in question is replete with interest, and seems destined to occupy a full share of the attention of the medical profession in this country. From the intimate relations we are to hold with the Old World, the nationality of this disease will soon be lost, and the typhus fever of Great Britain become also the true typhus of America—differing in all its essential points from the dothinentérite, which is endemic here, by as much as variola differs from scarlatina. It is to be hoped that the facts and appearances connected with the visitations of this malady, at various points along our coast and in the interior, will be carefully collected and given to the public with impartiality and candor, that we may at length obtain materials sufficient to enable us to form a just estimate of the character of a fever yet obscure in many of its points, and whose eccentricities have tended much to confuse and perplex the minds of those who know it only as revealed in some particular locality, or as confined to a single epidemic.

* The fever prevailed last winter at the Baltimore Alms House in a peculiarly malignant form, about 33 *per cent.* of all the cases proving fatal. For a full description of this epidemic, see the instructive paper of Dr. Wynne, published in the April number of the Amer. Jour. of Medical Sciences, Phila.

